Missouri Immunization Registry Implementation Guide for HL7 2.5.1 Immunization Messaging

Version *1.1*
06/30/12

VERSION HISTORY

Version #	Implemented By	Revision Date	Reason
1.0	Tom Rice	12/31/2011	Initial version based on CDC template.
1.1	Tom Rice	06/30/2012	Updates as a result of information received through development and pilot.

Table of Contents

1. Introduction

In order for different health information systems to exchange data, the structure and content of the data to be exchanged must be standardized. Three controlling documents define how the Missouri Immunization Registry HL7 data exchange interface works. They are arranged in a hierarchy of documents, each refining and constraining the HL7 Standard.

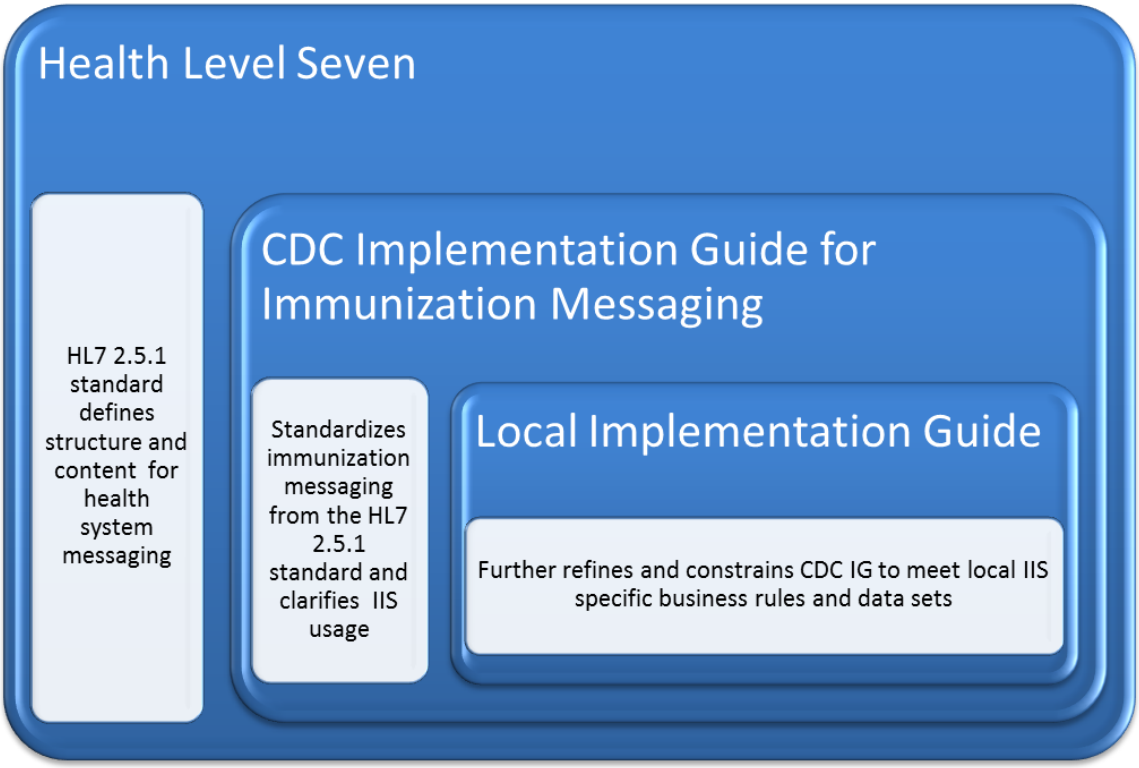

Figure 1: HL7 Controlling Document Hierarchy

The first document is the HL7 2.5.1 standard developed by Health Level Seven, a not-for-profit ANSI-accredited standards developing organization. This standard defines the structure and content of immunization messages, but leaves many specific implementation details undecided. Beneficial information on HL7 and a copy of the HL7 message standard can be obtained from the Health Level Seven website at http://www.hl7.org.

The second document is the CDC's **HL7 2.5.1 Implementation Guide for Immunization Messaging, Release 1.3** (CDC IG). This guide gives specific instructions regarding how to report to immunization information systems, but still leaves some implementation decisions to each

state IIS. This guide and other technical information can be obtained from the CDC website at http://www.cdc.gov/vaccines/programs/iis/stds/standards.htm.

The third document is this document. It is finalizes all implementation decisions and defines exactly what the Missouri Immunization Registry will and will not accept. It is written in accordance with the standards set in the first two documents except as otherwise noted. This local implementation guide has taken great care to point out differences from the CDC IG by adding additional columns to the tables. In cases where this guide differs from the CDC IG, this guide will provide both the CDC IG column followed by the local usage specification. This effort will prove highly useful in the larger interoperability effort for Electronic Health Record Systems, Indian Health Services, and any other electronic exchange that may span multiple IIS. Providing this information will allow the implementers of external systems to accurately compare the CDC IG with a local implementation guide, and to compare differences between two different local implementation guides much more easily than in the past.

Intended Audience

This Local IG is intended for technical groups from IIS and EHR-S that must implement these guidelines. The reader of this Local IG should have a solid HL7 foundation and be very familiar with the contents of the CDC IG (http://www.cdc.gov/vaccines/programs/iis/stds/standards.htm). Chapters 2 and 3 of the CDC IG provide HL7 foundational concepts and set the stage for this Local IG. The goal of this Local IG is to provide an unambiguous specification for creating and interpreting messages.

Scope

This Local IG is intended to facilitate the exchange of immunization records between external Health Systems and the Missouri Immunization Registry. This includes:

- sending and receiving immunization histories for individuals
- sending and receiving demographic information about the individuals
- requesting immunization histories for individuals
- responding to requests for immunization histories by returning immunization histories
- acknowledging receipt of immunization histories and requests for immunization histories
- reporting errors in the messaging process
- sending observations about an immunization event (this may include patient eligibility for a funding program, reactions, contraindications, and immunities)
- business rules, which are not implicit in HL7, applied when creating a message
- business rules, which are not implicit in HL7, applied when processing a received message

This Local IG is not intended to specify other issues such as

- the standard transport layer
- search process used when responding to a query
- business rules used to de-duplicate clients or events management of vaccine inventory
- maintenance of Master Person Index

Organization and Flow

This Local IG is designed to mirror the organization and flow of the CDC IG. This chapter of this guide defines the high-level use cases supported by the Missouri Immunization Registry. The subsequent chapters define how the Missouri Immunization Registry implements those use cases. Finally, this guide has appendices for the code tables and example messages.

It is important to note this guide adheres to the CDC IG on several key aspects including

- Data type specifications from chapter 3 of the CDC IG have not been redefined and usage has not been changed
- Standardized vocabulary is supported as specified in the CDC IG
- To the extent possible, data sets and business rules will adhere to the CDC IG.

In cases where differences exist between this guide and the CDC IG the differences will be clearly defined in the appropriate sections of this guide.

2. Actors, Goals, and Messaging Transactions

Chapter 2 of the CDC IG defines actors (entities) that may be involved in sending or receiving immunization-related messages. It describes what actors are and how use cases (goals) can be associated to those actors. Finally, it associates specific HL7 messages with these use cases.

There are nine use cases defined in Chapter 2 of the CDC IG. The use cases listed in the CDC IG and supported by the Missouri Immunization Registry are:

Use Case	Goal	Supported by the Missouri Immunization Registry
Send Immunization History	To send an immunization history for an individual client from one system to another. In addition to EHR-S and IIS, other systems such as vital records systems or billing systems could use this message to send immunization histories.	Yes
Receive Immunization History	To receive an unsolicited immunization history. It may be an update or a new record.	Yes
Request Immunization History	To request an immunization history from another system.	Yes QBP using Request Immunization History query profile, but not using PDQ (IHE) or PIX. Only Implicit Identity Resolution is supported.
Return Immunization History	To return an immunization history to another system.	Yes
Accept Requested History	To accept an immunization history in response to a query for an immunization history from another system.	Yes
Send Demographic Data	To send demographic data about a person. It may be an update or a new record.	Yes VXU, but not ADT
Accept Demographic Data	To accept demographic data about a person. It may be an update or a new record.	Yes VXU, but not ADT
Acknowledge Receipt	To acknowledge receipt of a message. This can be an immunization history, request for immunization history, demographic update, observation report or request for personal id. It may indicate success or failure. It may include error messages.	Yes No ACK will be generated for batch messages.
Report Error	To send error messages related to submitted messages. These errors could result in rejection of message or parts of message.	Yes

For detailed specifics about each use case, please refer to Chapter 2 of the CDC IG.

3. HL7 Messaging Infrastructure

The CDC IG contains basic descriptions of terms and definitions that are used in both the CDC IG and this guide. To avoid potentially ambiguous situations, the majority of the terms and definitions will not be redefined in this guide.

A key attribute to HL7 fields, components, and sub-components is the Usage Code. In the table below are the acceptable Usage Codes used in this implementation guide.

Usage Code	Interpretation	Comment
R	Required	A conforming sending application shall populate all "R" elements with a non-empty value. Conforming receiving application shall process or ignore the information conveyed by required elements. A conforming receiving application must not raise an error due to the presence of a required element, but may raise an error due to the absence of a required element.
RE	Required but may be empty	The element may be missing from the message, but it must be sent by the sending application if there is relevant data. A conforming sending application should be capable of providing all "RE" elements. If the conforming sending application knows the required values for the element, then it must send that element. If the conforming sending application does not know the required values, then that element will be omitted. Receiving applications will be expected to process or ignore data contained in the element, but must be able to successfully process the message if the element is omitted (no error message should be

Usage Code	Interpretation	Comment
		generated because the element is missing).
C	Conditional	This usage has an associated condition predicate. This predicate is an attribute within the message. **If the predicate is satisfied:** A conformant sending application must always send the element. A conformant receiving application must process or ignore data in the element. It may raise an error if the element is not present. **If the predicate is NOT satisfied:** A conformant sending application must NOT send the element. A conformant receiving application must NOT raise an error if the condition predicate is false and the element is not present, though it may raise an error if the element IS present.

Usage Code	Interpretation	Comment
CE	Conditional but may be empty	This usage has an associated condition predicate. This predicate is an attribute within the message. **If the predicate is satisfied:** If the conforming sending application knows the required values for the element, then the application must send the element. If the conforming sending application does not know the values required for this element, then the element shall be omitted. The conforming sending application should be capable of knowing the element (when the predicate is true) for all 'CE' elements. If the element is present, the conformant receiving application shall process or ignore the values of that element. If the element is not present. The conformant receiving application shall not raise an error due to the presence or absence of the element. **If the predicate is not satisfied:** The conformant sending application shall not populate the element. The conformant receiving application may raise an application error if the element is present.
O	Optional	This element may be present if specified in local profile. Local partners may develop profiles that support use of this element. In the absence of a profile, conformant sending applications will not send the element. Conformant receiving applications will ignore the element if it is sent, unless local profile specifies otherwise. Conformant receiving applications may

Usage Code	Interpretation	Comment
		not raise an error if it receives an unexpected optional element.
X	Not Supported	The element is not supported. Sending applications should not send this element. Receiving applications should ignore this element if present. A receiving application may raise an error if it receives an unsupported element. Any profile based on this Guide should not specify use of an element that is not supported in this Guide.

4. HL7 Data Types

The CDC IG contains clearly defined HL7 data types that are the building blocks of an HL7 message. Similar to the terms and definitions found in the HL7 Messaging Infrastructure section above, this guide will avoid potentially ambiguous situations and not attempt to redefine an already clearly defined section. This guide will adhere to Chapter 4 of the CDC IG.

5. Segments and Message Details

This chapter will contain specifications for each segment used. It will indicate which fields are supported or required and describe any constraints on these fields. Chapter 6 will address how these building blocks are assembled into specific messages that meet the use cases listed in Chapter 2.

Table 5-1 Message Segments

Segment (Name/Role)	Definition	Message Usage	CDC IG Usage	Missouri Immunization Registry Usage	Note
BHS (Batch Header Segment)	The Batch Header Segment wraps a group of 1 or more messages. These may be a mixture of acceptable message types. This segment is not required for real-time messaging. That is, a stream of messages may be sent without a BHS. A system may choose to require BHS for all groups of messages, but should	VXU	Optional	Not Supported	Used at the beginning of any batch of messages. For the Missouri Immunization Registry, only VXU messages may be sent in batches, and BHS segments will be ignored.

Segment (Name/Role)	Definition	Message Usage	CDC IG Usage	Missouri Immunization Registry Usage	Note
	specify this requirement in a local implementation Guide.				
BTS (Batch Trailer Segment)	The BTS segment defines the end of a batch. It is required if the message has a matching BHS.	VXU	Required if message starts with BHS.	Not Supported	Used to mark the end of any batch of messages. For the Missouri Immunization Registry, only VXU messages may be sent in batches, and BTS segments will be ignored.
ERR (Error Segment)	The error segment reports information about errors in processing the message. The segment may repeat. Each error will have its own ERR segment.	ACK, RSP	Ability to create and process is required for conformant systems.	Not used at this time	Used to return information about errors. The Missouri Immunization Registry will not include the ERR segment in responses.
EVN (Event Segment)	The EVN segment is used to communicate necessary trigger event information to receiving applications. Valid event types for all chapters are contained in	ADT	Required for ADT message.	Not Supported	Normally used to convey event trigger information, this segment is only used in the ADT message, which is not supported by the Missouri Immunization

Segment (Name/Role)	Definition	Message Usage	CDC IG Usage	Missouri Immunization Registry Usage	Note
	HL7 Table 0003 - Event Type				Registry.
FHS (File Header Segment)	The file header segment may be used to group one or more batches of messages. This is a purely optional segment, even if batches are sent. Its' use is not anticipated for use in real-time transactions. Any system that anticipates its use should specify this in a local implementation Guide.	VXU	Optional	Not Supported	Used to mark the beginning of a file of batches. For the Missouri Immunization Registry, only VXU messages may be sent in batches, and FHS segments will be ignored.
FTS (File Trailer Segment)	The FTS segment defines the end of a file of batches. It is only used when the FHS segment is used.	VXU	Required to terminate a file of batches. (Matches FHS)	Not Supported	Used to mark the end of a file of batches. For the Missouri Immunization Registry, only VXU messages may be sent in batches, and FTS segments will be ignored.
IN1-3	The IN1-IN3 segments	VXU	Optional	Not Supported	This segment is not used by

Segment (Name/Role)	Definition	Message Usage	CDC IG Usage	Missouri Immunization Registry Usage	Note
(Insurance Segment)	contain insurance policy coverage information necessary to produce properly pro-rated and patient and insurance bills.				the Missouri Immunization Registry.
MSA (Message Acknowledgement Segment)	This segment is included in the query response (RSP) and acknowledgment (ACK) messages. It contains information used to identify the receiver's acknowledgement response to an identified prior message.	RSP, ACK	Ability to create and process is required for conformant systems.	Ability to create and process is required for conformant systems.	
MSH (Message Segment Header)	The MSH segment defines the intent, source, destination, and some specifics of the syntax of a message.	All	Ability to create and process is required for conformant systems.	Ability to create and process is required for conformant systems.	This begins every message and includes information about the type of message, how to process it, and by whom it was created.
NK1 (Next of Kin Segment)	The NK1 segment contains information about the patient's next of kin or	VXU, RSP	Ability to create and process is required for	**Missouri Exception:** The Missouri	Used to carry information about the next of kin for a client.

Segment (Name/Role)	Definition	Message Usage	CDC IG Usage	Missouri Immunization Registry Usage	Note
	other related parties. Any associated parties may be identified.		conformant systems.	Immunization Registry will not load next of kin data via HL7 at this time. It will, however, send next of kin data in an outbound message if that data has been loaded from another source.	
NTE (Note Segment)	The NTE segment is used for sending notes and comments. It is used in relation to OBX in the VXU and RSP.	VXU, RSP	Ability to create and process is required for conformant systems.	**Missouri Exception:** The Missouri Immunization Registry neither creates nor processes the NTE segment.	Used to carry a note related to the parent segment.
OBX (Observation Result	The observation result segment has many uses. It carries observations about	VXU, RSP	Ability to create and process is required for	Ability to create and process is required for	Used to report one atomic part of an observation.

Segment (Name/Role)	Definition	Message Usage	CDC IG Usage	Missouri Immunization Registry Usage	Note
Segment)	the object of its parent segment. In the VXU/RSP it is associated with the RXA or immunization record. The basic format is a question and an answer.		conformant systems.	conformant systems.	
ORC (Order Request Segment)	The Common Order segment (ORC) is used to transmit fields that are common to all orders (all types of services that are requested). While not all immunizations recorded in an immunization message are able to be associated with an order, each RXA must be associated with one ORC, based on HL7 2.5.1 standard.	VXU, RSP	Ability to create and process is required for conformant systems.	**Missouri Exception:** At this time, the Missouri Immunization Registry will ignore the data in the ORC segment.	Used to give information about a group of one or more orders (typically RXA).
PD1 (Patient Demographic	The patient additional demographic segment contains demographic	VXU, RSP	Ability to create and process is required for	Ability to create and process is required for	Used to give information about a patient. A primary use in immunization

Segment (Name/Role)	Definition	Message Usage	CDC IG Usage	Missouri Immunization Registry Usage	Note
Segment)	information that is likely to change about the patient. In immunization messages, this is information about the need to protect the client's information, how they should be part of reminder efforts and their current status in the IIS.		conformant systems.	conformant systems.	messages is to give information about privacy and whether contact is allowed.
PID (Patient Identifier Segment)	This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change. Used by all applications as the primary means of communicating patient identification information frequently.	VXU, RSP	Ability to create and process is required for conformant systems.	Ability to create and process is required for conformant systems.	Used to carry information about the patient/client.
PV1	This segment contains	VXU, RSP	Optional	The Missouri	The Missouri Immunization

Segment (Name/Role)	Definition	Message Usage	CDC IG Usage	Missouri Immunization Registry Usage	Note
(Patient Visit Segment)	information related to a specific visit.			Immunization Registry will process this segment, but will not create it.	Registry prefers that Financial Class (funding program eligibility status) be received in OBX-5, as described in HL7 2.5.1, Release 1.3 documentation. If this is not possible, it may be received in PV1-20, as described in Release 1.2 documentation. The Missouri Immunization Registry will only send Financial Class in OBX-5.
QAK (Query acknowledgement segment)	The QAK segment contains information sent with responses to a query.	RSP	Ability to create and process is required for conformant systems.	The Missouri Immunization Registry will create this segment, but will not receive or process it, as QBP will be inbound only at this time.	
QPD	Query parameter	QBP, RSP	Ability to create	The Missouri	

Segment (Name/Role)	Definition	Message Usage	CDC IG Usage	Missouri Immunization Registry Usage	Note
	definition		and process is required for conformant systems.	Immunization Registry will process this segment, but will only create it to mirror what was received in a QBP message.	
RCP	Response control parameter segment	QBP	Ability to create and process is required for conformant systems.	Ability to create is required for conformant initiating systems that will send QBP messages. Ability to process is required for conformant responding systems.	
RXA	Pharmacy/Treatment Administration Segment	VXU, RSP	Ability to create and process is required for	Ability to create and process is required for	

Segment (Name/Role)	Definition	Message Usage	CDC IG Usage	Missouri Immunization Registry Usage	Note
			conformant systems.	conformant systems.	
RXR	Pharmacy/Treatment Route Segment	VXU, RSP	Ability to create and process is required for conformant systems.	Ability to create and process is required for conformant systems.	

BHS—Batch Header Segment

This segment is not supported by the Missouri Immunization Registry.

BTS—Batch Trailer Segment

This segment is not supported by the Missouri Immunization Registry.

ERR—Error Segment

This segment is not supported by the Missouri Immunization Registry.

EVN - Event Type Segment

This segment is not supported by the Missouri Immunization Registry.

FHS—File Header Segment

This segment is not supported by the Missouri Immunization Registry.

FTS—File Trailer Segment

This segment is not supported by the Missouri Immunization Registry.

IN1—Insurance Segment (IN2, IN3)

These segments will not be used by the Missouri Immunization Registry.

MSA—Message Acknowledgement Segment

Table 5-8 Message Acknowledgement Segment (MSA)

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Comment
1	2	ID	[1..1]	[1..1]	0008	Acknowledgment Code	R	R	
2	20	ST	[1..1]	[1..1]		Message Control ID	R	R	
3	80	ST	[0..1]	[0..0]		Text Message	O	X	
4	15	NM	[0..1]	[0..0]		Expected Sequence Number	O	X	
5			[0..1]	[0..0]		Delayed Acknowledgment Type	O	X	
6		CE	[0..0]	[0..0]	0357	Error Condition	X	X	

MSA Field Definitions

MSA-1 Acknowledgment Code (ID) 00018

Definition: This field contains an acknowledgment code. See message processing rules. Refer to HL7 Table 0008 - Acknowledgment code for valid values.

MSA-2 Message Control ID (ST) 00010

Definition: This field contains the message control ID of the message sent by the sending system. It allows the sending system to associate this response with the message for which it is intended. This field echoes the message control id sent in MSH-10 by the initiating system.

MSH—Message Header Segment

HL7 ATTRIBUTE TABLE - MSH - MESSAGE HEADER

Table 5-9 Message Header Segment (MSH)

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Constraint
1	1	ST	[1..1]	[1..1]		Field Separator	R	R	The MSH-1 field shall be |
2	4	ST	[1..1]	[1..1]		Encoding Characters	R	R	The MSH-2 field shall be ^~\&
3		HD	[0..1]	[1..1]	0361 See con-straint	Sending Application	RE	R	For messages sent to the Missouri Immunization Registry, MSH-3.1 shall be a name or identifier that uniquely defines the Sending Application within the Sending Facility. For messages sent from the Missouri Immunization Registry, MSH-3.1 shall be SHOWMEVAX. MSH-3.2 and MSH-3.3 will be ignored by the Missouri Immunization Registry.
4		HD	[0..1]	[1..1]	0362 See con-straint	Sending Facility	RE	R	For messages sent to the Missouri Immunization Registry, MSH-4.1 shall be the identifier assigned to the Sending Facility by MODHSS (Missouri Department of Health and Senior Services). For messages sent from the Missouri Immunization Registry, MSH-4.1 shall be MODHSS. MSH-4.2 and MSH-4.3 will be ignored by the Missouri Immunization Registry.

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Constraint
5		HD	[0..1]	[1..1]	0361 See con-straint	Receiving Application	RE	R	For messages sent to the Missouri Immunization Registry, MSH-5.1 shall be SHOWMEVAX. For messages sent from the Missouri Immunization Registry, MSH-5.1 shall be a name or identifier that uniquely defines the Receiving Application within the Receiving Facility. MSH-5.2 and MSH-5.3 will be ignored by the Missouri Immunization Registry.
6		HD	[0..1]	[1..1]	0362 See con-straint	Receiving Facility	RE	R	For messages sent to the Missouri Immunization Registry, MSH-6.1 shall be MODHSS. For messages sent from the Missouri Immunization Registry, MSH-6.1 shall be the identifier assigned to the Receiving Facility by MODHSS (Missouri Department of Health and Senior Services). MSH-6.2 and MSH-6.3 will be ignored by the Missouri Immunization Registry.
7		TS	[1..1]	[1..1]		Date/Time Of Message	R	R	The degree of precision must be at least to the second, and the time zone must be included. The Missouri Immunization Registry will ignore the time zone. (format YYYYMMDDHHMMSS[.S[S[S[S]]]]+/-ZZZZ).
8	40	ST	[0..1]	[0..0]		Security	O	X	

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Constraint
9	15	MSG	[1..1]	[1..1]		Message Type	R	R	QBP^Q11^QBP_Q11, RSP^R11^RSP_R11, VXU^V04^VXU_V04, ACK^V04^ACK
10	20	ST	[1..1]	[1..1]		Message Control ID	R	R	Uniquely identifies this message to the Sender.
11	3	PT	[1..1]	[1..1]		Processing ID	R	R	
12		VID	[1..1]	[1..1]		Version ID	R	R	2.5.1
13	15	NM	[0..1]	[0..0]		Sequence Number	O	X	
14	180	ST	[0..1]	[0..0]		Continuation Pointer	O	X	
15	2	ID	[0..1]	[0..1]	0155	Accept Acknowledgment Type	RE	RE	The Missouri Immunization Registry ignores this field, as it uses original acknowledgment mode with exceptions noted in the field definitions below.
16	2	ID	[0..1]	[0..1]	0155	Application Acknowledgment Type	RE	RE	The Missouri Immunization Registry ignores this field, as it uses original acknowledgment mode with exceptions noted in the field definitions below.
17	3	ID	[0..1]	[0..0]	0399	Country Code	O	X	
18	16	ID	[0..1]	[0..0]	0211	Character Set	O	X	
19		CE	[0..1]	[0..0]		Principal Language Of Message	O	X	

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Constraint
20	20	ID	[0..1]	[0..0]	0356	Alternate Character Set Handling Scheme	O	X	
21		EI	[0..*]	[0..1]		Message Profile Identifier	O	RE	This field will be required for use whenever a Profile is being used (QBP/RSP).

MSH Field Definitions

MSH-1 Field Separator (ST) 00001

Definition: This field contains the separator between the segment ID and the first real field, MSH-2-encoding characters. As such it serves as the separator and defines the character to be used as a separator for the rest of the message. Required value is |, (ASCII 124).

Example:

MSH|

↑

Note: If the field separator character | is to be used in actual data within the message, it must be replaced using the special character escape sequence described in the HL7 2.5.1 standard, Section 2.7, Use of escape sequences in text fields.

MSH-2 Encoding Characters (ST) 00002

Definition: This field contains the four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator. Required values are ^~\& (ASCII 94, 126, 92, and 38, respectively).

Note: If any of the encoding characters ^~\& are to be used in actual data within the message, they must be replaced using the special character escape sequences described in the HL7 2.5.1 standard, Section 2.7, Use of escape sequences in text fields.

MSH-3 Sending Application (HD) 00003

Definition: This field uniquely identifies the sending application. In the case of an IIS, it will be found in the list of IIS applications in Appendix A, User-defined table 0300. This is not the product, but rather the name of the specific instance. For instance, the IIS in Georgia(GRITS) is an instance based on the Wisconsin IIS (WIR). The code for GRITS would be specific to GRITS. Additional locally defined codes may be added to accommodate local needs. The first component shall be the name space id found in User-defined Table 0300, including local additions to this table. The second and third components are reserved for use of OIDs.

For messages sent to the Missouri Immunization Registry, MSH-3.1 shall be a name or identifier that uniquely defines the Sending Application within the Sending Facility. For messages sent from the Missouri Immunization Registry, MSH-3.1 shall be SHOWMEVAX. MSH-3.2 and MSH-3.3 will be ignored by the Missouri Immunization Registry.

MSH-4 Sending Facility (HD) 00004

Definition: This field identifies the organization responsible for the operations of the sending application. Locally defined codes may be added to accommodate local needs. The first component shall be the name space id found in User-defined Table 0300. The second and third components are reserved for use of OIDs or other universal identifiers.

For messages sent to the Missouri Immunization Registry, MSH-4.1 shall be the identifier assigned to the Sending Facility by MODHSS (Missouri Department of Health and Senior Services). For messages sent from the Missouri Immunization Registry, MSH-4.1 shall be MODHSS. MSH-4.2 and MSH-4.3 will be ignored by the Missouri Immunization Registry.

MSH-5 Receiving Application (HD) 00005

Definition: This field uniquely identifies the receiving application. In the case of an IIS, it will be found in the list of IIS applications in Appendix A, User-defined table 0300. This is not the product, but rather the name of the specific instance. For instance, the IIS in Georgia(GRITS) is an instance based on the Wisconsin IIS (WIR). The code for GRITS would be specific to GRITS. Additional locally defined codes may be added to accommodate local needs. The first component shall be the name space id found in User-defined Table 0300. The second and third components are reserved for use of OIDs.

For messages sent to the Missouri Immunization Registry, MSH-5.1 shall be SHOWMEVAX. For messages sent from the Missouri Immunization Registry, MSH-5.1 shall be a name or identifier that uniquely defines the Receiving Application within the Receiving Facility. MSH-5.2 and MSH-5.3 will be ignored by the Missouri Immunization Registry.

MSH-6 Receiving Facility (HD) 00006

Definition: This field identifies the organization responsible for the operations of the receiving application. Locally defined codes may be added to accommodate local needs. The first component shall be the name space id found in User-defined Table 0300. The second and third components are reserved for use of OIDs.

For messages sent to the Missouri Immunization Registry, MSH-6.1 shall be MODHSS. For messages sent from the Missouri Immunization Registry, MSH-6.1 shall be the identifier assigned to the Receiving Facility by MODHSS (Missouri Department of Health and Senior Services). MSH-6.2 and MSH-6.3 will be ignored by the Missouri Immunization Registry.

MSH-7 Date/Time Of Message (TS) 00007

Definition: This field contains the date/time that the sending system created the message. The degree of precision must be at least to the second. The time zone must be specified and will be used throughout the message as the default time zone. **Missouri Exception:** Time zone will not be recorded, used, or returned. All times will be stored as presented, in local time.

Note: This field was made required in version 2.4. Messages with versions prior to 2.4 are not required to value this field. This usage supports backward compatibility.

MSH-9 Message Type (MSG) 00009

Definition: This field contains the message type, trigger event, and the message structure ID for the message. Refer to HL7 Table 0076 - Message type for valid values for the message type code. This table contains values such as ACK, ADT, VXU, ORU etc. The following table lists those anticipated to be used by IIS.

Table 5-10 Message Types

Transaction	Message type
Unsolicited update of immunization record	VXU
Unsolicited update of demographic data	ADT (use VXU instead, for the Missouri Immunization Registry)
Query to another system	QBP
Response to query	RSP
General Acknowledgment	ACK

Refer to HL7 Table 0003 - Event type for valid values for the trigger event. This table contains values like A01, O01, R01 etc.

Message structure component is required.

MSH-10 Message Control ID (ST) 00010

Definition: This field contains the identifier assigned by the sending application (MSH-3) that uniquely identifies a message instance. This identifier is unique within the scope of the sending facility (MSH-4), sending application (MSH-3), and the YYYYMMDD portion of message date (MSH-7). The receiving system echoes this ID back to the sending system in the Message acknowledgment segment (MSA). The content and format of the data sent in this field is the responsibility of the sender. The receiver returns exactly what was sent in response messages.

MSH-11 Processing ID (PT) 00011

Definition: This field is used to decide whether to process the message as defined in HL7 Application (level 7) Processing rules. Reference Table HL7 0103 in Appendix A. The choices are Production, Debugging and Training. In most cases, P or Production should be used.

MSH-12 Version ID (VID) 00012

Definition: This field contains the identifier of the version of the HL7 messaging standard used in constructing, interpreting, and validating the message. Only the first component need be populated.

Messages conforming to the specifications in this Guide shall indicate that the version is 2.5.1. Messages indicating an earlier version shall follow the specifications in the 2.3.1 Guide.

MSH-15 Accept Acknowledgment Type (ID) 00015

Definition: This field identifies the conditions under which accept acknowledgments are required to be returned in response to this message. Required for enhanced acknowledgment mode. Refer to HL7 Table 0155 - Accept/application acknowledgment conditions for valid values.

The Missouri Immunization Registry uses original acknowledgment mode with some exceptions for VXU, regardless of what is coded in this field. This field will be ignored. See the Clarification following the MSH-16 field definition.

Accept acknowledgement indicates if the message was safely received or not. It does not indicate successful processing. Application acknowledgement indicates the outcome of processing.

MSH-16 Application Acknowledgment Type (ID) 00016

Definition: This field contains the conditions under which application acknowledgments are required to be returned in response to this message.

Required for enhanced acknowledgment mode. The Missouri Immunization Registry uses original acknowledgment mode with some exceptions for VXU, regardless of what is coded in this field. This field will be ignored. See the Clarification below.

Note: If MSH-15-accept acknowledgment type and MSH-16-application acknowledgment type are omitted (or are both empty), the original acknowledgment mode rules are used. This means that, unless otherwise specified, the receiving application will send acknowledgment when it has processed the message.

Clarification: When the Missouri Immunization Registry receives VXU messages in real time, it does not fully apply them to the database in real time. Some errors may be identified in initial processing, making it possible to send acknowledgment indicating the error. For all others, MSA-1, Acknowledgment Code, will be AA, simply indicating that the message was accepted. This will not indicate successful processing. For QBP messages, the Missouri Immunization Registry will send acknowledgment only when it is unable to send an RSP message.

MSH-21 Message Profile Identifier (EI) 01598

Definition: Sites may use this field to assert adherence to, or reference, a message profile. Message profiles contain detailed explanations of grammar, syntax, and usage for a particular message or set of messages. Chapter 7 describes the query profile for requesting an immunization history. It also includes child profiles that constrain the response to the query. The Missouri Immunization Registry will use values Z34^CDCPHINVS (QBP, RSP – not candidate list or immunization history), Z31^CDCPHINVS (RSP – candidate list), and Z32^CDCPHINVS (RSP – immunization history). MSH-21 will be left empty for other message types.

This field will be required whenever a profile is being used to constrain the message.

NK1—Next of Kin Segment

The NK1 segment contains information about the patient's other related parties. Any associated parties may be identified. Utilizing NK1-1 - set ID, multiple NK1 segments can be sent to patient accounts. That is, each subsequent NK1 increments the previous set ID by 1. Therefore, if 3 NK1 were sent in one message, the first would have a set id of 1, the second would have 2 and the third would have 3.

Table 5-11 Next of Kin Segment (NK1)

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Constraint
1	4	SI	[1..1]	[1..1]		Set ID - NK1	R	R	
2		XPN	[1..*]	[1..1]		Name	R	R	The Missouri Immunization Registry does not support repetition of this field.
3		CE	[1..1]	[1..1]	0063	Relationship	R	R	
4		XAD	[0..*]	[0..*]		Address	RE	RE	The Missouri Immunization Registry will only use the first instance, which shall be the primary address. Other instances will be ignored.
5		XTN	[0..*]	[0..1]		Phone Number	RE	RE	The Missouri Immunization Registry will only return the primary phone number.
6		XTN	[0..*]	[0..0]		Business Phone Number	O	X	
7		CE	[0..1]	[0..0]	0131	Contact Role	O	X	
8	8	DT	[0..1]	[0..0]		Start Date	O	X	
9	8	DT	[0..1]	[0..0]		End Date	O	X	
10	60	ST	[0..1]	[0..0]		Next of Kin / Associated Parties Job Title	O	X	
11		JCC	[0..1]	[0..0]	0327/ 0328	Next of Kin / Associated Parties Job Code/Class	O	X	
12		CX	[0..1]	[0..0]		Next of Kin / Associated Parties Employee	O	X	

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Constraint
						Number			
13		XON	[0..1]	[0..0]		Organization Name - NK1	O	X	
14		CE	[0..1]	[0..0]	0002	Marital Status	O	X	
15	1	IS	[0..1]	[0..0]	0001	Administrative Sex	O	X	
16		TS	[0..1]	[0..1]		Date/Time of Birth	O	RE	The Missouri Immunization Registry ignores any time component.
17	2	IS	[0..1]	[0..0]	0223	Living Dependency	O	X	
18	2	IS	[0..1]	[0..0]	0009	Ambulatory Status	O	X	
19		CE	[0..1]	[0..0]	0171	Citizenship	O	X	
20		CE	[0..1]	[0..0]	ISO0639	Primary Language	O	X	
21	2	IS	[0..1]	[0..0]	0220	Living Arrangement	O	X	
22		CE	[0..1]	[0..0]	0215	Publicity Code	O	X	
23	1	ID	[0..1]	[0..0]	0136	Protection Indicator	O	X	
24	2	IS	[0..1]	[0..0]	0231	Student Indicator	O	X	
25		CE	[0..1]	[0..0]	0006	Religion	O	X	
26		XPN	[0..1]	[0..0]		Mother’s Maiden Name	O	X	
27		CE	[0..1]	[0..0]	0212	Nationality	O	X	

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Constraint
28		CE	[0..1]	[0..0]	0189	Ethnic Group	O	X	
29		CE	[0..1]	[0..0]	0222	Contact Reason	O	X	
30		XPN	[0..1]	[0..0]		Contact Person's Name	O	X	
31		XTN	[0..1]	[0..0]		Contact Person's Telephone Number	O	X	
32		XAD	[0..1]	[0..0]		Contact Person's Address	O	X	
33		CX	[0..1]	[0..*]	0203, 0363	Next of Kin/Associated Party's Identifiers	O	RE	The Missouri Immunization Registry uses only the SSN and the Missouri Medicaid Number, ignoring all other identifiers. This field was intended, per its name, to accommodate multiple identifiers. The HL7 2.5.1 standard allows repetition. It is assumed that the more restrictive CDC IG Cardinality is a mistake.
34	2	IS	[0..1]	[0..0]	0311	Job Status	O	X	
35		CE	[0..1]	[0..0]	0005	Race	O	X	
36	2	IS	[0..1]	[0..0]	0295	Handicap	O	X	
37	16	ST	[0..1]	[0..0]		Contact Person Social Security Number	O	X	
38		ST	[0..1]	[0..0]		Next of Kin Birth Place	O	X	
39	2	IS	[0..1]	[0..0]	0099	VIP Indicator	O	X	

NK1 Field Definitions

NK1-1 Set ID - NK1 (SI) 00190

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.

NK1-2 Name (XPN) 00191

Definition: This field contains the name of the next of kin or associated party. Multiple names for the same person are allowed, but the legal name must be sent in the first sequence. Refer to HL7 Table 0200 - Name Type for valid values.

NK1-3 Relationship (CE) 00192

Definition: This field contains the actual personal relationship that the next of kin/associated party has to the patient. Refer to User-defined Table 0063 - Relationship for suggested values.

NK1-4 Address (XAD) 00193

Definition: This field contains the address of the next of kin/associated party. Multiple addresses are allowed for the same person. The mailing address must be sent in the first sequence. If the mailing address is not sent, then the repeat delimiter must be sent in the first sequence.

NK1-5 Phone Number (XTN) 00194

Definition: This field contains the telephone number of the next of kin/associated party. Multiple phone numbers are allowed for the same person. The primary telephone number must be sent in the first sequence. If the primary telephone number is not sent, then the repeat delimiter must be sent in the first sequence. Refer to HL7 Table 0201 - Telecommunication Use Code and HL7 Table 0202 - Telecommunication Equipment Type for valid values.

NK1-16 Date/Time of Birth (TS) 00110

Definition: This is the data of birth of the next of kin.

NK1-33 Next of Kin/Associated Party's Identifiers (CX) 00751

Definition: These are the identifiers associated with the next of kin. The Missouri Immunization Registry uses only the SSN and the Missouri Medicaid Number, ignoring all other identifiers in NK1-33,5. SSN will not be returned. The assigning authority in NK1-33,4 is ignored in the inbound message and is returned as 'MOA'.

NTE—Note Segment

The NTE segment is used for sending notes and comments. It is used in relation to OBX in the VXU and RSP. It is also used in ADT in relation to various segments. The Missouri Immunization Registry will ignore any comments sent in the NTE segment.

Table 5-12 Note Segment (NTE)

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Comment
1	4	SI	[0..1]	[0..0]		Set ID - NTE	O	X	
2	8	ID	[0..1]	[0..0]	0105	Source of Comment	O	X	
3		FT	[1..1]	[1..1]		Comment	R	R	The Missouri Immunization Registry will ignore any comments sent in the NTE segment.
4		CE	[0..1]	[0..0]	0364	Comment Type	O	X	

NTE Field Definitions

NTE-3 Comment (FT) 00098

Definition: This field contains the comment contained in the segment.

The Missouri Immunization Registry will ignore any comments sent in the NTE segment.

OBX—Observation Result Segment

The observation result segment has many uses. It carries observations about the object of its parent segment. In the VXU/RSP it is associated with the RXA or immunization record. The basic format is a question (OBX-3) and an answer (OBX-5).

Table 5-13 Observation Segment (OBX)

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Sets	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Comment
1	4	SI	[1..1]	[1..1]		Set ID – OBX	R	R	
2	2	ID	[1..1]	[1..1]	0125	Value Type	R	R	CE, NM, ST, DT, or TS
3		CE	[1..1]	[1..1]		Observation Identifier	R	R	This indicates what this observation refers to. It poses the question that is answered by OBX-5. The Missouri Immunization Registry will only accept specific LOINC codes. All others will be ignored. See the list in the field definition for OBX-3 below.
4	20	ST	[1..1]	[0..1]		Observation Sub-ID	RE	RE	CDC IG Cardinality conflicts with CDC IG Usage. It is assumed that the Usage is correct, and the Observation Sub-ID may be null when there is no need to group observations.
5		varies[1]	[1..1]	[1..1]		Observation Value	R	R	This is the observation value and answers the question posed by OBX-3. The Missouri Immunization Registry will only accept specific observation values for the LOINC codes specified in the field definition for OBX-3. All others will be ignored. See the list in the field definition for OBX-5 below.
6		CE	[0..1]	[0..1]		Units	CE	CE	If the observation in OBX-5 requires an indication of the units, they are placed here.

[1] The length of the observation field is variable, depending upon value type. See *OBX-2 value type*.

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Sets	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Comment
7	60	ST	[0..1]	[0..0]		References Range	O	X	
8	5	IS	[0..1]	[0..0]	0078	Abnormal Flags	O	X	
9	5	NM	[0..1]	[0..0]		Probability	O	X	
10	2	ID	[0..1]	[0..0]	0080	Nature of Abnormal Test	O	X	
11	1	ID	[1..1]	[1..1]	0085	Observation Result Status	R	R	Constrain to F
12		TS	[0..1]	[0..0]		Effective Date of Reference Range Values	O	X	
13	20	ST	[0..1]	[0..0]		User Defined Access Checks	O	X	
14		TS	[1..1]	[1..1]		Date/Time of the Observation	R	R	
15		CE	[0..1]	[0..0]		Producer's Reference	O	X	
16		XCN	[0..1]	[0..0]		Responsible Observer	O	X	
17		CE	[0..1]	[0..0]		Observation Method	O	X	
18		EI	[0..1]	[0..0]		Equipment Instance Identifier	O	X	
19		TS	[0..1]	[0..0]		Date/Time of the Analysis	O	X	

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Sets	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Comment
20			[0..1]	[0..0]		Reserved for harmonization with V2.6	O	X	
21			[0..1]	[0..0]		Reserved for harmonization with V2.6	O	X	
22			[0..1]	[0..0]		Reserved for harmonization with V2.6	O	X	
23		XON	[0..1]	[0..0]		Performing Organization Name	O	X	
24		XAD	[0..1]	[0..0]		Performing Organization Address	O	X	
25		XCN	[0..1]	[0..0]		Performing Organization Medical Director	O	X	

OBX Field Definitions

OBX-1 Set ID - OBX (SI) 00569

Definition: This field contains the sequence number. The first instance shall be set to 1 and each subsequent instance shall be the next number in sequence.

OBX-2 Value Type (ID) 00570

Definition: This field contains the format of the observation value in OBX. If the value is CE then the result must be a coded entry.

Each of the Observation Identifiers that the Missouri Immunization Registry accepts has Observation Values of data type CE, so segments with other values in this field will be ignored.

OBX-3 Observation Identifier (CE) 00571

Definition: This field contains a unique identifier for the observation. The format is that of the Coded Element (CE). Example: |30963-3^Vaccine purchased with^LN|.

In most systems the identifier will **point** to a master observation table that will provide other attributes of the observation that may be used by the receiving system to process the observations it receives. This may be thought of as a question that the observation answers. In the example above, the question is "how was this immunization paid for" The answer in OBX-5 could be "Public Funding".

The Missouri Immunization Registry will only accept specific LOINC codes. All others will be ignored. The accepted values are as follows:

30945-0 (vaccination contraindication/precaution)

31044-1 (reaction)

59784-9 (disease with presumed immunity)

64994-7 (vaccine funding program eligibility category)

The 2.3.1 Implementation Guide used suffixes on the first sequence in OBX-3 to group related observations. For instance, reporting a VIS publication date and VIS receipt date each added a suffix of one LOINC code to a second LOINC code when recording VIS dates for a component vaccine. (38890-0&29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN) This is no longer acceptable. Grouping of related observations will be accomplished using Observation sub-id (OBX-4).

OBX-4 Observation Sub-ID (ST) 00572

Definition: This field is used to group related observations by setting the value to the same number. For example, recording VIS date and VIS receipt date for a combination vaccination requires 6 OBX segments. One OBX would indicate the vaccine group. It would have a pair of OBX indicating the VIS publication date and the VIS receipt date. These would have the same OBX-4 value to allow them to be linked. The second set of three would have another OBX-4 value common to each of them.

This field may be used to link related components of an observation. Each component of the observation would share an Observation sub-id.

For example:
OBX|1|LN|^observation 1 part 1^^^^^|1|…
OBX|2|LN|^ observation 1 part 2^^^^^|1|…
OBX|3|DT|^a different observation^^^^^|2|…

Example:

OBX|1|CE|38890-0^COMPONENT VACCINE TYPE^LN|1|45^HEP B, NOS^CVX|||||F|<CR>

OBX|2|TS|29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN|1|20010711|||||F|<CR>

OBX|3|TS|29769-7^DATE VACCINE INFORMATION STATEMENT PRESENTED^LN|1|19901207|||||F|<CR>

OBX|4|CE|38890-0^COMPONENT VACCINE TYPE^LN|2|17^HIB,NOS^CVX|||||F|<CR>

OBX|5|TS|29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN|2|19981216|||||F|<CR>

OBX|6|TS|29769-7^DATE VACCINE INFORMATION STATEMENT PRESENTED^LN|2|19901207|||||F|<CR>

For the observations used by the Missouri Immunization Registry, there is no need for grouping observations. Therefore, this field will be null.

OBX-5 Observation Value (varies) 00573

Definition: This field contains the value observed by the observation producer. OBX-2-value type contains the data type for this field according to which observation value is formatted.

This field contains the value of OBX-3-observation identifier of the same segment. Depending upon the observation, the data type may be a number (e.g., dose number), a coded answer (e.g., a vaccine), or a date/time (the date/time that the VIS was given to the client/parent). An observation value is always represented as the data type specified in OBX-2-value type of the same segment. Whether numeric or short text, the answer shall be recorded in ASCII text.

Coded values

When an OBX segment contains values of CE data types, the observations are stored as a combination of codes and/or text.

The Missouri Immunization Registry will accept specific observation values for the LOINC codes specified in the field definition for OBX-3 above. All others will be ignored. The accepted values are as follows:

For 30945-0 (vaccination contraindication/precaution):

VXC18 - allergy to baker's yeast (anaphylactic) - CDCPHINVS

91930004 - allergy to egg ingestion (anaphylactic) - SCT

294847001 - allergy to gelatin (anaphylactic) - SCT

294468006 - allergy to neomycin (anaphylactic) - SCT

294466005 - allergy to streptomycin (anaphylactic) - SCT

For 31044-1 (reaction):

VXC9 – persistent, inconsolable crying lasting > 3 hours within 48 hours of dose - CDCPHINVS

VXC10 – collapse or shock-like state within 48 hours of dose - CDCPHINVS

VXC11 – convulsions (fits, seizures) within 72 hours of dose - CDCPHINVS

VXC12 – fever of > 40.5C (105F) within 48 hours of dose - CDCPHINVS

For 59784-9 (disease with presumed immunity):

38907003 – history of varicella infection - SCT

For 64994-7 (vaccine funding program eligibility category):

Use codes from User-defined Table 0064.

OBX-6 Units (CE) 00574

Definition: This shall be the units for the value in OBX-5. The value shall be from the ISO+ list of units.

For the observation values used by the Missouri Immunization Registry, there is no need for units. Therefore, this field will be null.

OBX-11 Observation Result Status (ID) 00579

Definition: This field contains the observation result status. The expected value is F or final.

OBX-14 Date/Time of the Observation (TS) 00582

Definition: Records the time of the observation. It is the physiologically relevant date-time or the closest approximation to that date-time of the observation.

The Missouri Immunization Registry will ignore any time component.

ORC—Order Request Segment

The Common Order segment (ORC) is used to transmit fields that are common to all orders (all types of services that are requested). While not all immunizations recorded in an immunization message are able to be associated with an order, each RXA must be associated with one ORC, based on HL7 2.5.1 standard.

Table 5-14 Common Order Segment (ORC)

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Comment
1	2	ID	[1..1]	[1..1]	0119	Order Control	R	R	use RE
2		EI	[0..1]	[0..1]		Placer Order Number	RE	RE	See Guidance below. The Missouri Immunization Registry will ignore this field.
3		EI	[1..1]	[1..1]		Filler Order Number	R	R	See Guidance below. The Missouri Immunization Registry will ignore this field.
4		EI	[0..1]	[0..0]		Placer Group Number	O	X	
5	2	ID	[0..1]	[0..0]	0038	Order Status	O	X	
6	1	ID	[0..1]	[0..0]	0121	Response Flag	O	X	
7		TQ	[0..0]	[0..0]		Quantity/Timing	X	X	
8		EIP	[0..1]	[0..0]		Parent	O	X	
9		TS	[0..1]	[0..0]		Date/Time of Transaction	O	X	
10		XCN	[0..1]	[0..1]		Entered By	RE	RE	This is the person that entered this immunization record into the system. The Missouri Immunization Registry will ignore this field.
11		XCN	[0..1]	[0..0]		Verified By	O	X	
12		XCN	[0..1]	[0..1]		Ordering Provider	RE	RE	This shall be the provider ordering the immunization. It is expected to be empty if the immunization record is transcribed from a historical record. The Missouri Immunization Registry will ignore this field.
13		PL	[0..1]	[0..0]		Enterer's Location	O	X	

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Comment
14		XTN	[0..1]	[0..0]		Call Back Phone Number	O	X	
15		TS	[0..1]	[0..0]		Order Effective Date/Time	O	X	
16		CE	[0..1]	[0..0]		Order Control Code Reason	O	X	
17		CE	[0..1]	[0..0]		Entering Organization	O	X	This is the provider organization that entered this record/order.
18		CE	[0..1]	[0..0]		Entering Device	O	X	
19		XCN	[0..1]	[0..0]		Action By	O	X	
20		CE	[0..1]	[0..0]	0339	Advanced Beneficiary Notice Code	O	X	
21		XON	[0..1]	[0..0]		Ordering Facility Name	O	X	
22		XAD	[0..1]	[0..0]		Ordering Facility Address	O	X	
23		XTN	[0..1]	[0..0]		Ordering Facility Phone Number	O	X	
24		XAD	[0..1]	[0..0]		Ordering Provider Address	O	X	
25		CWE	[0..1]	[0..0]		Order Status Modifier	O	X	
26		CWE	[0..1]	[0..0]	0552	Advanced Beneficiary Notice	O	X	

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Comment
						Override Reason			
27		TS	[0..1]	[0..0]		Filler's Expected Availability Date/Time	O	X	
28		CWE	[0..1]	[0..0]	0177	Confidentiality Code	O	X	
29		CWE	[0..1]	[0..0]	0482	Order Type	O	X	
30		CNE	[0..1]	[0..0]	0483	Enterer Authorization Mode	O	X	
31		CWE	[0..1]	[0..0]		Parent Universal Service Identifier	O	X	

ORC Field Definitions

ORC-1 Order Control (ID) 00215

Definition: Determines the function of the order segment.

The value for VXU and RSP shall be RE.

Placer Order Number (ORC-2) and Filler Order Number (ORC-3) are unique identifiers from the system where an order was placed and where the order was filled. They were originally designed for managing lab orders. These fields have a usage status of Conditional in Version 2.5.1. The condition for each is that they must be present in either the OBR or ORC of a message. There has been confusion about usage for these fields. The Orders and Observations workgroup has addressed this confusion. In the context that ORC will be used in Immunization messaging either ORC-2 or ORC-3 must be populated. They may both be populated.

In the immunization context, it is not common to have one system placing and one filling an immunization order. In some cases neither is known. The use case that these have supported is to allow a system that sent an immunization record to another system to identify an immunization that needs to be changed using the Filler Order Number it had sent. This Guide specifies that Placer Order Number is RE (required, but may be empty). The Filler Order Number SHALL be the unique immunization id of the sending system.

ORC-2 Placer Order Number (EI) 00216

Definition: The placer order number is used to identify uniquely this order among all orders sent by a provider organization.

The Missouri Immunization Registry will ignore this field.

ORC-2 is a system identifier assigned by the placer software application. The Placer Order Number and the Filler Order Number are essentially foreign keys exchanged between applications for uniquely identifying orders and the associated results across applications. In the case where the ordering provider organization is not known, the sending system may leave this field empty.

ORC-3 Filler Order Number (EI) 00217

Definition: The filler order number is used to identify uniquely this order among all orders sent by a provider organization that filled the order.

The Missouri Immunization Registry will ignore this field.

This shall be the unique identifier of the sending system in a given transaction. In the case where system A sends the record to system B and system B then forwards to system C, system B will send its' own unique identifier. Use of this foreign key will allow the initiating system to identify accurately the previously sent immunization record, facilitating update or deletion of that record. In the case where a historic immunization is being recorded (i.e. from an immunization card), the sending system SHALL assign an identifier as if it were an immunization administered by a provider associated with the provider organization owning the sending system. In the case where an RXA is conveying information about an immunization that was not given (e.g. refusal) the filler order number shall be 9999.

Note that the receiving system will need to store this value in addition to its own internal id in order for this to be used.

ORC-10 Entered By (XCN) 00224

Definition: This identifies the individual that entered this particular order. It may be used in conjunction with an RXA to indicate who recorded a particular immunization.

The Missouri Immunization Registry will ignore this field.

ORC-12 Ordering Provider (XCN) 00226

Definition: This field contains the identity of the person who is responsible for creating the request (i.e., ordering physician). In the case where this segment is associated with a historic immunization record and the ordering provider is not known, then this field should not be populated.

The Missouri Immunization Registry will ignore this field.

PD1—Patient Demographic Segment

The Patient Demographic Segment contains patient demographic information that may change from time to time. There are three primary uses for in Immunization Messages. These include indicating whether the person wants his/her data protected, whether the person wants to receive recall/reminder notices and the person's current status in the registry.

Table 5-15 Patient Demographic Segment (PD1)

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Comment
1	2	IS	[0..1]	[0..0]	0223	Living Dependency	O	X	
2	2	IS	[0..1]	[0..0]	0220	Living Arrangement	O	X	
3	250	XON	[0..1]	[0..0]		Patient Primary Facility	O	X	
4	250	XCN	[0..1]	[0..0]		Patient Primary Care Provider Name & ID No.	O	X	
5	2	IS	[0..1]	[0..0]	0231	Student Indicator	O	X	
6	2	IS	[0..1]	[0..0]	0295	Handicap	O	X	
7	2	IS	[0..1]	[0..0]	0315	Living Will Code	O	X	
8	2	IS	[0..1]	[0..0]	0316	Organ Donor Code	O	X	
9	1	ID	[0..1]	[0..0]	0136	Separate Bill	O	X	
10	250	CX	[0..1]	[0..0]		Duplicate Patient	O	X	
11	250	CE	[0..1]	[0..1]	0215	Publicity Code	RE	RE	The Missouri Immunization Registry will ignore this field.
12	1	ID	[0..1]	[0..1]	0136	Protection Indicator	RE	RE	If protection indicator is Y, then the Missouri Immunization Registry will not load data from this message. If the protection indicator is N or is empty, then the Missouri Immunization Registry will load data.
13	8	DT	[0..1]	[0..1]		Protection	CE	CE	If protection indicator is valued, then this field

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Comment
						Indicator Effective Date			should be valued. The Missouri Immunization Registry will ignore this field.
14	250	XON	[0..1]	[0..0]		Place of Worship	O	X	
15	250	CE	[0..1]	[0..0]	0435	Advance Directive Code	O	X	
16	1	IS	[0..1]	[0..1]	0441	Immunization Registry Status	RE	RE	The Missouri Immunization Registry will ignore this field.
17	8	DT	[0..1]	[0..1]		Immunization Registry Status Effective Date	CE	CE	If the registry status field is filled, then this should be valued. The Missouri Immunization Registry will ignore this field.
18	8	DT	[0..1]	[0..1]		Publicity Code Effective Date	CE	CE	If the publicity code field is filled then this field should be valued. The Missouri Immunization Registry will ignore this field.
19	5	IS	[0..1]	[0..0]	0140	Military Branch	O	X	
20	2	IS	[0..1]	[0..0]	0141	Military Rank/Grade	O	X	
21	3	IS	[0..1]	[0..0]	0142	Military Status	O	X	

PD1 Field Definitions

PD1-11 Publicity Code (CE) 00743

Definition: This field contains a user-defined code indicating what level of publicity is allowed (e.g., No Publicity, Family Only) for the patient. In the context of immunization messages, this refers to how a person wishes to be contacted in a reminder or recall situation. Refer to User-defined Table 0215 - Publicity Code for suggested values. The Missouri Immunization Registry will ignore this field.

PD1-12 Protection Indicator (ID) 00744

Definition: This field identifies whether a person's information may be shared with others[2]. Specific protection policies are a local consideration (opt in or opt out, for instance). This field conveys the current state in the sending system.

The protection state must be actively determined by the clinician. If it is not actively determined, then the protection indicator shall be empty.

There are 3 states:

Protection State	Code
Yes, protect the data. Client (or guardian) has indicated that the information shall be protected. (Do not share data)	Y
No, it is not necessary to protect data from other clinicians. Client (or guardian) has indicated that the information does not need to be protected. (Sharing is OK)	N
No determination has been made regarding client's (or guardian's) wishes regarding information sharing	PD1-12 is empty.

If protection indicator is Y, then the Missouri Immunization Registry will not load data from this message. If the protection indicator is N or is empty, then the Missouri Immunization Registry will load data.

Notes on use of Y for Protection Indicator in 2.5.1 Guide vs. earlier Guides.

[2] Local policies determine how data are protected. In general, it indicates who may view the client's data. It may be as narrow as just the provider that entered the information.

Note that the previous Implementation Guide stated that Y meant that a person's information could be shared. This was an incorrect interpretation of the use of this field. The meaning now aligns with the definition of HL7. That is, Y means data must be protected. Existing systems that use the old meaning will need to determine how they will send the correct value in a 2.5.1 message.

Note that the value sent in a message that is based on the 2.3.1 or 2.4 version of the HL7 standard shall continue to follow the old guidance. That is, Y means sharing is allowed and N means sharing is not allowed.

Note on Null and Empty in HL7

See notes on null and empty fields in Chapter 3 of the CDC IG.

PD1-13 Protection Indicator Effective Date (DT) 01566

Definition: This field indicates the effective date for PD1-12 - Protection Indicator. The Missouri Immunization Registry will ignore this field.

PD1-16 Immunization Registry Status (IS) 01569

Definition: This field identifies the current status of the patient in relation to the sending provider organization. Refer to User-defined Table 0441 - Immunization Registry Status for suggested values. The Missouri Immunization Registry will ignore this field.

This field captures whether the sending provider organization considers this an active patient. There are several classes of responsibility. The status may be different between the sending and receiving systems. For instance, a person may no longer be active with a provider organization, but may still be active in the public health jurisdiction, which has the Immunization Information System (IIS). In this case the provider organization would indicate that the person was inactive in their system using this field in a message from them. The IIS would indicate that person was active in a message from the IIS.

PD1-17 Immunization Registry Status Effective Date (DT) 01570

Definition: This field indicates the effective date for the registry status reported in PD1-16 - Immunization Registry Status. The Missouri Immunization Registry will ignore this field.

PD1-18 Publicity Code Effective Date (DT) 01571

Definition: This is the effective date for PD1-11 - Publicity Code. The Missouri Immunization Registry will ignore this field.

PID—Patient Identifier Segment

The PID is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

Table 5-16 Patient Identifier Segment (PID)

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Constraint
1	4	SI	[0..1]	[0..1]		Set ID - PID	RE	RE	
2		CX	[0..0]	[0..0]		Patient ID	X	X	
3		CX	[1..*]	[1..*]	0203, 0363	Patient Identifier List	R	R	The Missouri Immunization Registry ignores identifiers of types other than MA, PI, SR, and SS. At least one identifier of one of these types must be present.
4		CX	[0..0]	[0..0]		Alternate Patient ID - 00106	X	X	
5		XPN	[1..*]	[1..*]		Patient Name	R	R	The first repetition shall contain the legal name. Multiple given names or initials are separated by spaces.
6		XPN	[0..1]	[0..1]		Mother's Maiden Name	RE	RE	
7		TS	[1..1]	[1..1]		Date/Time of Birth	R	R	Required, must have month, day and year.
8	1	IS	[0..1]	[1..1]	0001	Administrative Sex	RE	R	M= male, F = female, U = not determined/unspecified/unknown.
9		XPN	[0..0]	[0..0]		Patient Alias	X	X	This field should not be used. It was supported in earlier implementations.
10		CE	[0..*]	[0..*]	0005	Race	RE	RE	The first triplet is to be used for the alpha code. The second triplet of the CE data type for race (alternate identifier, alternate text, and name of alternate coding system) should be used for governmentally assigned numeric codes (####-#). The Missouri Immunization Registry uses only the numeric codes in the

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Constraint
									second triplet.
11		XAD	[0..*]	[0..*]		Patient Address	RE	RE	The first repetition should be the primary address.
12	4	IS	[0..0]	[0..0]	0289	County Code	X	X	County belongs in address field.
13		XTN	[0..*]	[0..*]		Phone Number - Home	RE	RE	The first instance shall be the primary phone number. Only one item is allowed per repetition.
14		XTN	[0..*]	[0..0]		Phone Number - Business	O	X	
15		CE	[0..1]	[0..0]	ISO0639	Primary Language	O	X	Use ISO 639.
16		CE	[0..1]	[0..0]	0002	Marital Status	O	X	
17		CE	[0..1]	[0..0]	0006	Religion	O	X	
18		CX	[0..1]	[0..0]		Patient Account Number	O	X	
19	16	ST	[0..0]	[0..0]		SSN Number - Patient	X	X	
20		DLN	[0..0]	[0..0]		Driver's License Number - Patient	X	X	
21		CX	[0..0]	[0..0]		Mother's Identifier	X	X	

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Constraint
22		CE	[0..1]	[0..1]	0189	Ethnic Group	RE	RE	First triplet shall contain H,N,U if populated. Second triplet shall contain government issued code from table HL7 0189, if populated. If both are populated, they must match logically. The Missouri Immunization Registry uses only the numeric codes in the second triplet.
23	60	ST	[0..1]	[0..0]		Birth Place	O	X	Use may be specified locally.
24	1	ID	[0..1]	[0..1]	0136	Multiple Birth Indicator	RE	RE	The acceptable values are Y and N. If the status is undetermined, then field shall be empty.
25	2	NM	[0..1]	[0..1]		Birth Order	CE	CE	If Multiple Birth Indicator is populated with Y, then this field should contain the number indicating the person's birth order, with 1 for the first child born and 2 for the second.
26		CE	[0..1]	[0..0]	0171	Citizenship	O	X	
27		CE	[0..1]	[0..0]	0172	Veterans Military Status	O	X	
28		CE	[0..1]	[0..0]	0212	Nationality	O	X	
29		TS	[0..1]	[0..1]		Patient Death Date and Time	RE	RE	
30	1	ID	[0..1]	[0..1]	0136	Patient Death Indicator	CE	CE	If patient death date is populated, then this field should be populated.
31	1	ID	[0..1]	[0..0]	0136	Identity Unknown Indicator	O	X	

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Constraint
32	20	IS	[0..1]	[0..0]	0445	Identity Reliability Code	O	X	
33		TS	[0..1]	[0..0]		Last Update Date/Time	O	X	May be locally specified.
34		HD	[0..1]	[0..0]		Last Update Facility	O	X	Use is locally specified.
35		CE	[0..1]	[0..0]	0446	Species Code	O	X	
36		CE	[0..1]	[0..0]	0447	Breed Code	O	X	
37	80	ST	[0..1]	[0..0]		Strain	O	X	
38		CE	[0..1]	[0..0]	0429	Production Class Code	O	X	
39		CWE	[0..1]	[0..0]	0171	Tribal Citizenship	O	X	

PID Field Definitions

PID-1 Set ID - PID (SI) 00104

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.

PID-3 Patient Identifier List (CX) 00106

Definition: This field contains the list of identifiers (one or more) used by the healthcare facility to uniquely identify a patient (e.g., medical record number, billing number, birth registry, national unique individual identifier, etc.). The Missouri Immunization Registry ignores

identifiers of types other than MA, PI, SR, and SS in PID-3.5. At least one identifier of one of these types must be present. SSN will not be returned. The assigning authority in PID-3.4 is ignored for inbound messages and is returned as 'MOA'.

PID-5 Patient Name (XPN) 00108

Definition: This field contains the names of the patient, The primary or legal name of the patient is reported first. Therefore, the name type code in this field should be "L - Legal". Refer to HL7 Table 0200 - Name Type for valid values.

PID-6 Mother's Maiden Name (XPN) 00109

Definition: This field contains the family name under which the mother was born (i.e., before marriage). It is used to distinguish between patients with the same last name.

PID-7 Date/Time of Birth (TS) 00110

Definition: This field contains the patient's date and time of birth.

PID-8 Administrative Sex (IS) 00111

Definition: This field contains the patient's sex. Refer to User-defined Table 0001 - Administrative Sex for suggested values.

PID-9 Patient Alias (XPN) 00112

Definition: Not anticipated for use in immunization messages.

This field was used in the 2.3.1 Implementation Guide. Alias names should be placed in the patient name field.

PID-10 Race (CE) 00113

Definition: This field refers to the patient's race. Refer to User-defined Table 0005 - Race for suggested values. The second triplet of the CE data type for race (alternate identifier, alternate text, and name of alternate coding system) is reserved for governmentally assigned codes.

The Missouri Immunization Registry uses only the numeric codes in the second triplet.

PID-11 Patient Address (XAD) 00114

Definition: This field contains the mailing address of the patient. Address type codes are defined by HL7 Table 0190 - Address Type. Multiple addresses for the same person may be sent in the following sequence: The primary mailing address must be sent first in the sequence (for backward compatibility); if the mailing address is not sent, then a repeat delimiter must be sent in the first sequence.

This field is used for any type of address that is meaningfully associated with the client/patient. For instance Birth State is the state of the address of the birthing location, address type = BDL. A person's address may be sent in this field or in the NK1 segment with a relationship code indicating Self. Local implementations should clarify how these addresses will be handled.

The Missouri Immunization Registry allows address types H, P, M, and BR. Addresses of other types will be ignored.

PID-12 County Code (IS) 00115

Definition: Not anticipated for use in immunization messages. County code belongs in the Address field (PID-11).

PID-13 Phone Number - Home (XTN) 00116

Definition: This field contains the patient's personal phone numbers. All personal phone numbers for the patient are sent in the following sequence. The first sequence is considered the primary number (for backward compatibility). If the primary number is not sent, then a repeat delimiter is sent in the first sequence. Each type of telecommunication shall be in its' own repetition. For example, if a person has a

phone number and an email address, they shall each have a repetition. Refer to HL7 Table 0201 - Telecommunication Use Code and HL7 Table 0202 - Telecommunication Equipment Type for valid values.

The Missouri Immunization Registry assumes use code PRN if no value is provided. Use codes other than PRN, WPN, and NET will be ignored. Equipment type values will be ignored.

PID-22 Ethnic Group (CE) 00125

Definition: This field further defines the patient's ancestry. Refer to User-defined Table 0189 - Ethnic Group. The second triplet of the CE data type for ethnic group (alternate identifier, alternate text, and name of alternate coding system) is reserved for governmentally assigned codes.

The Missouri Immunization Registry uses only the numeric codes in the second triplet.

PID-24 Multiple Birth Indicator (ID) 00127

Definition: This field indicates whether the patient was part of a multiple birth. Refer to HL7 Table 0136 - Yes/No Indicator for valid values.

Y	the patient was part of a multiple birth
N	the patient was a single birth
Empty	multiple birth status is undetermined.

PID-25 Birth Order (NM) 00128

Definition: When a patient was part of a multiple birth, a value (number) indicating the patient's birth order is entered in this field. If PID-24 is populated, then this field should be populated.

PID-29 Patient Death Date and Time (TS) 00740

Definition: This field contains the date and time at which the patient death occurred.

PID-30 Patient Death Indicator (ID) 00741

Definition: This field indicates whether the patient is deceased. Refer to HL7 Table 0136 - Yes/no Indicator for valid values.

Y	the patient is deceased
N	the patient is not deceased
Empty	status is undetermined

PV1—Patient Visit Segment

The PV1 segment is used to convey visit specific information. The primary use in immunization messages in HL7 2.5.1 Release 1.2 and earlier releases was to carry information about the client's eligibility status. As of HL7 2.5.1 Release 1.3, this is now recorded at the immunization event (dose administered) level. Use of this segment for the purpose of reporting patient eligibility for a funding program at the visit level will decline.

The Missouri Immunization Registry prefers that Financial Class be sent in OBX-5, as described in HL7 2.5.1, Release 1.3 documentation. If this is not possible, it may be sent in PV1-20, as described in Release 1.2 documentation.

Table 5-16A Patient Visit (PV1)

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Constraint
1	4	SI	[0..1]	[0..0]		Set ID - PV1	O	X	If populated, this should be 1.
2	1	IS	[1..1]	[1..1]	0004	Patient Class	R	R	R
3		PL	[0..1]	[0..0]		Assigned Patient Location	O	X	
4	2	IS	[0..1]	[0..0]	0007	Admission Type	O	X	
5		CX	[0..1]	[0..0]		Pre-admit Number	O	X	
6		PL	[0..1]	[0..0]		Prior Patient Location	O	X	
7		XCN	[0..1]	[0..0]	0010	Attending Doctor	O	X	
8		XCN	[0..1]	[0..0]	0010	Referring Doctor	O	X	
9		XCN	[0..1]	[0..0]	0010	Consulting Doctor	O	X	
10	3	IS	[0..1]	[0..0]	0069	Hospital Service	O	X	
11		PL	[0..1]	[0..0]		Temporary Location	O	X	
12	2	IS	[0..1]	[0..0]	0087	Preadmit Test Indicator	O	X	
13	2	IS	[0..1]	[0..0]	0092	Re-admission Indicator	O	X	
14	6	IS	[0..1]	[0..0]	0023	Admit Source	O	X	
15	2	IS	[0..1]	[0..0]	0009	Ambulatory Status	O	X	
16	2	IS	[0..1]	[0..0]	0099	VIP Indicator	O	X	
17		XCN	[0..1]	[0..0]	0010	Admitting Doctor	O	X	
18	2	IS	[0..1]	[0..0]	0018	Patient Type	O	X	

19		CX	[0..1]	[0..0]		Visit Number	O	X	
20		FC	[1..*]	[1..*]	0064	Financial Class	R	R	The Missouri Immunization Registry prefers that Financial Class be sent in OBX-5, as described in HL7 2.5.1, Release 1.3 documentation. If this is not possible, it may be sent in PV1-20, as described in Release 1.2 documentation.
21	2	IS	[0..1]	[0..0]	0032	Charge Price Indicator	O	X	
22	2	IS	[0..1]	[0..0]	0045	Courtesy Code	O	X	
23	2	IS	[0..1]	[0..0]	0046	Credit Rating	O	X	
24	2	IS	[0..1]	[0..0]	0044	Contract Code	O	X	
25	8	DT	[0..1]	[0..0]		Contract Effective Date	O	X	
26	12	NM	[0..1]	[0..0]		Contract Amount	O	X	
27	3	NM	[0..1]	[0..0]		Contract Period	O	X	
28	2	IS	[0..1]	[0..0]	0073	Interest Code	O	X	
29	4	IS	[0..1]	[0..0]	0110	Transfer to Bad Debt Code	O	X	
30	8	DT	[0..1]	[0..0]		Transfer to Bad Debt Date	O	X	
31	10	IS	[0..1]	[0..0]	0021	Bad Debt Agency Code	O	X	
32	12	NM	[0..1]	[0..0]		Bad Debt Transfer Amount	O	X	
33	12	NM	[0..1]	[0..0]		Bad Debt Recovery Amount	O	X	
34	1	IS	[0..1]	[0..0]	0111	Delete Account Indicator	O	X	

35	8	DT	[0..1]	[0..0]		Delete Account Date	O	X	
36	3	IS	[0..1]	[0..0]	0112	Discharge Disposition	O	X	
37		DLD	[0..1]	[0..0]	0113	Discharged to Location	O	X	
38		CE	[0..1]	[0..0]	0114	Diet Type	O	X	
39	2	IS	[0..1]	[0..0]	0115	Servicing Facility	O	X	
40	1	IS	[0..1]	[0..0]	0116	Bed Status	O	X	
41	2	IS	[0..1]	[0..0]	0117	Account Status	O	X	
42		PL	[0..1]	[0..0]		Pending Location	O	X	
43		PL	[0..1]	[0..0]		Prior Temporary Location	O	X	
44		TS	[0..1]	[0..0]		Admit Date/Time	O	X	
45		TS	[0..1]	[0..0]		Discharge Date/Time	O	X	
46	12	NM	[0..1]	[0..0]		Current Patient Balance	O	X	
47	12	NM	[0..1]	[0..0]		Total Charges	O	X	
48	12	NM	[0..1]	[0..0]		Total Adjustments	O	X	
49	12	NM	[0..1]	[0..0]		Total Payments	O	X	
50		CX	[0..1]	[0..0]	0203	Alternate Visit ID	O	X	
51	1	IS	[0..1]	[0..0]	0326	Visit Indicator	O	X	
52		XCN	[0..1]	[0..0]	0010	Other Healthcare Provider	O	X	

PV1 Field Definitions

PV1-2 Patient Class (IS) 00132

Definition: This field is used by systems to categorize patients by site. It shall be constrained to R.

PV1-20 Financial Class (FC) 00150

Definition: This field contains the financial class(es) assigned to the patient. It reflects the current eligibility status. For children, this will include the eligibility status for the Vaccines for Children program (VFC). This field has 2 components: financial class and date. The date is the date that the status was assessed. Refer to User-defined Table 0064 - Financial Class for suggested values.

The Missouri Immunization Registry prefers that Financial Class be sent in OBX-5, as described in HL7 2.5.1, Release 1.3 documentation. If this is not possible, it may be sent in PV1-20, as described in Release 1.2 documentation.

QAK—Query Acknowledgement Segment

Table 5-17 Query Acknowledgement Segment

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Comment
1	32	ST	[1..1]	[1..1]		Query Tag	R	R	
2	2	ID	[0..1]	[1..1]	0208	Query Response Status	O	R	
3		CE	[0..1]	[0..0]	0471	Message Query Name	O	R	
4	10	NM	[0..1]	[0..0]		Hit Count	O	X	
5	10	NM	[0..1]	[0..0]		This payload	O	X	
6	10	NM	[0..1]	[0..0]		Hits remaining	O	X	

QAK Field Definitions

QAK-1 Query Tag (ST) 00696

Definition: This field contains the value sent in QPD-2 (query tag) by the initiating system, and will be used to match response messages to the originating query. The responding system is required to echo it back as the first field in the query acknowledgement segment(QAK).

QAK-2 Query Response Status (ID) 00708

Definition: This field allows the responding system to return a precise response status. It is especially useful in the case where no data is found that matches the query parameters, but where there is also no error. It is defined with HL7 Table 0208 - Query Response Status.

QAK-3 Message Query Name (CE) 01375

Definition: This field contains the name of the query. This shall mirror the QPD-1 (Message Query Name) found in the query message that is being responded to.

QPD – Query Parameter Definition

The QPD segment defines the parameters of the query.

Table 5-18 Query Parameter Definition (QPD)

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Comment
1		CE	[1..1]	[1..1]	0471	Message Query Name	R	R	
2	32	ST		[1..1]		Query Tag	R	R	Generated by the initiating system.
3-n		varies				User Parameters (in successive fields)	R		The specification of this sequence is found in the profile specific to the use case.

QPD Field Definitions

QPD-1 Message Query Name (CE) 01375

Definition: This field contains the name of the query. These names are assigned by the function-specific chapters of this specification. It is one to one with the conformance statement for this query name, and it is in fact an identifier for that conformance statement.

QPD-2 Query Tag (ST) 00696

Definition: This field must be valued by the initiating system to identify the query, and may be used to match response messages to the originating query.

The responding system is required to echo it back as the first field in the query acknowledgement segment (QAK).

This field differs from *MSA-2-Message control ID* in that its value remains constant for each message (i.e. all continuation messages) associated with the query, whereas *MSA-2-Message control ID* may vary with each continuation message, since it is associated with each individual message, not the query as a whole.

QPD-3 User Parameters (Varies) 01435

Definition: These successive parameter fields hold the values that the Client passes to the Server.

The client data is presented as a sequence of HL7 fields. Beginning at *QPD-3-User parameters*, the remaining fields of the QPD segment carry user parameter data. Each QPD user parameter field corresponds to one parameter defined in the Conformance Statement, where each name, type, optionality, and repetition of each parameter has been specified. While these parameters are understood to be usually "and-ed" together, the user must inspect the required Conformance Statement to understand properly each. Except in the QSC variant, the parameter names do not need to be stated in the query; they are understood to be positional based on the Conformance Statement.

Each parameter field may be specified in the Conformance Statement to be of any single data type, including the complex QIP and QSC types. Parameter fields in the QPD segment appear in the same order as in the Conformance Statement.

RCP – Response Control Parameter Segment

The RCP segment is used to restrict the amount of data that should be returned in response to query. It lists the segments to be returned.

Table 5-19 Response Control Parameter

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Comments
1	1	ID	[0..1]	[0..0]	0091	Query Priority	O	X	Constrain to empty or I. Immediate priority is expected.
2		CQ	[0..1]	[0..1]	0126	Quantity Limited Request	O	RE	This field may contain a maximum number of records that may be returned. The first component contains the count and the second contains RD for records.
3		CE	[0..1]	[0..0]	0394	Response Modality	O	X	
4		TS	[0..1]	[0..0]		Execution and Delivery Time	O	X	
5	1	ID	[0..1]	[0..0]	0395	Modify Indicator	O	X	
6		SRT	[0..1]	[0..0]		Sort-by Field	O	X	
7		ID	[0..*]	[0..0]		Segment group inclusion	O	X	

RCP Field Definitions

RCP-2 Quantity Limited Request (CQ) 00031

Definition: This field contains the maximum length of the response that can be accepted by the requesting system. Valid entries are numerical values (in the first component) given in the units specified in the second component. Default is LI (lines). The expected type is records, so the second component is constrained to RD.

Note that this field is the maximum total records to return. The Version 2.5.1 standard indicates the maximum number to return in each batch. No batching of responses is permitted in this Guide.

RXA-- Pharmacy/Treatment Administration Segment

The RXA segment carries pharmacy administration data. It is a child of an ORC segment, which a repeating segment in the RSP and VXU messages. Because ORC are allowed to repeat an unlimited numbers of vaccinations may be included in a message. Each RXA must be preceded by an ORC.[3]

There is a change requiring an ORC conflicts with the previous implementation Guide. In that, ORC is optional and in fact rarely included in a VXU.

[3] The HL7 Version 2.5.1 document clearly indicates that any RXA must be associated with an ORC. In the case of immunization, each immunization will have its own ORC.

Table 5-20 Pharmacy/Treatment Administration (RXA)

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Comment
1	4	NM	[1..1]	[1..1]		Give Sub-ID Counter	R	R	Constrain to 0 (zero)
2	4	NM	[1..1]	[1..1]		Administration Sub-ID Counter	R	R	Constrain to 1
3		TS	[1..1]	[1..1]		Date/Time Start of Administration	R	R	
4		TS	[0..1]	[0..1]		Date/Time End of Administration	RE	RE	If populated, this should be the same as Start time (RXA-3)
5		CE	[1..1]	[1..1]	0292	Administered Code	R	R	CVX code is required. CPT code may be sent, but will not be stored or returned by the Missouri Immunization Registry.
6	20	NM	[1..1]	[1..1]		Administered Amount	R	R	The Missouri Immunization Registry records 999 regardless of the actual value received.
7		CE	[0..1]	[0..1]		Administered Units	CE	CE	If previous field is populated by any value except 999, it is required.
8		CE	[0..1]	[0..0]		Administered Dosage Form	O	X	
9		CE	[0..*]	[1..1]	NIP 001	Administration Notes	RE	R	The primary use of this field is to convey if this immunization record is based on a historical record or was given by the provider recording the immunization. All systems should be able to support this use. The Missouri Immunization Registry does not support repetition of this field.
10		XCN	[0..1]	[0..1]		Administering	RE	RE	This is the person who gave the

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Comment
						Provider			administration or the vaccinator. It is not the ordering clinician.
11		LA2	[0..1]	[0..1]		Administered-at Location	RE	RE	
12	20	ST	[0..1]	[0..0]		Administered Per (Time Unit)	O	X	
13	20	NM	[0..1]	[0..0]		Administered Strength	O	X	
14		CE	[0..1]	[0..0]		Administered Strength Units	O	X	
15	20	ST	[0..*]	[0..1]		Substance Lot Number	RE	RE	The Missouri Immunization Registry will only record one lot number.
16		TS	[0..1]	[0..1]		Substance Expiration Date	CE	CE	If the lot number is populated, this field should be valued.
17		CE	[0..*]	[0..1]	0227	Substance Manufacturer Name	RE	RE	The Missouri Immunization Registry will only record one manufacturer.
18		CE	[0..*]	[0..1]	NIP 002	Substance/Treatment Refusal Reason	C	C	If the Completion status is RE, then this shall be populated. The Missouri Immunization Registry will only record one refusal reason. It will receive and store refusals, but does not return them in an immunization history.
19		CE	[0..1]	[0..0]		Indication	O	X	
20	2	ID	[0..1]	[0..1]	0322	Completion Status	RE	RE	If this field is not populated, it is assumed to be CP or complete. If the Refusal reason is populated, this field shall be set to RE. If

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Comment
									CVX code is 998 in RXA-5, this field shall be set to NA. If dose is partially administered or impotent, this field shall be set to PA. The Missouri Immunization Registry will only load immunization records that have Completion Status CP (or empty).
21	2	ID	[0..1]	[0..1]	0323	Action Code - RXA	RE	RE	
22		TS	[0..1]	[0..0]		System Entry Date/Time	O	X	
23	5	NM	[0..1]	[0..0]		Administered Drug Strength Volume	O	X	
24		CWE	[0..1]	[0..0]		Administered Drug Strength Volume Units	O	X	
25		CWE	[0..1]	[0..0]		Administered Barcode Identifier	O	X	
26	1	ID	[0..1]	[0..0]	0480	Pharmacy Order Type	O	X	

RXA Field Definitions

RXA-1 Give Sub-ID Counter (NM) 00342

Definition: This field is used to match an RXA and RXG. Not a function under IIS. Constrain to 0 (zero).

RXA-2 Administration Sub-ID Counter (NM) 00344

Definition: This field is used to track multiple RXA under an ORC. Since each ORC has only one RXA in immunization messages, constrain to 1. This should not be used for indicating dose number, which belongs in an OBX.

Note that the previous Implementation Guide suggested that this be used for indicating dose number. This use is no longer supported.

RXA-3 Date/Time Start of Administration (TS) 00345

Definition: The date this vaccination occurred. In the case of refusal or deferral, this is the date that the refusal or deferral was recorded.

RXA-4 Date/Time End of Administration (If Applies) (TS) 00346

Definition: In the context of immunization, this is equivalent to the Start date/time. If populated it should be = RXA-3. If empty, the date/time of *RXA-3-Date/Time Start of Administration* is assumed.

RXA-5 Administered Code (CE) 00347

Definition: This field identifies the medical substance administered. If the substance administered is a vaccine, CVX codes should be used in either triplet to code this field (see HL7 Table 0292 - Codes for vaccines administered). The other set of three components could be used to represent the same vaccine using a different coding system, such as Current Procedural Terminology (CPT). CVX code is the strongly preferred code system.

The CDC IG says on page 41 that the first triplet is no longer reserved for CVX codes in RXA-5, but on page 122 it states that CVX codes should be used in the first triplet. The Missouri Immunization Registry requires CVX code, which may be in either triplet. CPT code may be sent, but will not be stored or returned.

RXA-6 Administered Amount (NM) 00348

Definition: This field records the amount of pharmaceutical administered. The units are expressed in the next field, RXA-7. Registries that do not collect the administered amount should record the value “999” in this field.

RXA-7 Administered units (CE) 00349

Definition: This field is conditional because it is required if the administered amount code does not imply units. This field must be in simple units that reflect the actual quantity of the substance administered. It does not include compound units. This field is not required if the previous field is populated with 999.

RXA-9 Administration Notes (CE) 00351

Definition: This field is used to indicate whether this immunization record is based on a historical record or was given by the reporting provider. It should contain the information source (see *NIP-defined Table 0001 - Immunization Information Source)*. The first component shall contain the code, the second the free text and the third shall contain the name of the code system. (NIP001) Sending systems should be able to send this information. Receiving systems should be able to accept this information.

The first repetition shall be the information source. The Missouri Immunization Registry does not support repetition of this field.

Information source is an NVAC core data element. It speaks to the reliability of the immunization record. IIS rely on this information.

RXA-10 Administering Provider (XCN) 00352

Definition: This field is intended to contain the name and provider ID of the person physically administering the pharmaceutical.

Note that previous Implementation Guide (2.3.1) overloaded this field by using local codes to indicate administering provider, ordering provider and recording provider. This is a misuse of this field and not supported in this Guide. The ordering and entering providers are indicated in the associated ORC segment.

RXA-11 Administered-at Location (LA2) 00353

Definition: The name and address of the facility that administered the immunization. Note that the components used are:

Component 4: The facility name/identifier.

Subcomponent 1:identifier[4]

Subcomponent 2: Universal ID This shall be an OID, if populated. Note that this should not be a local code, but rather a universal id code.

Subcomponent 3: Universal ID type (specify which universal id type)

Note that if subcomponent 1 is populated, 2 and 3 should be empty. If subcomponent 2 is populated with an OID, subcomponent 3 must be populated with ISO.

Component 9-15: Facility address.

Components not specifically mentioned here are not expected in immunization messages.

RXA-15 Substance Lot Number (ST) 01129

Definition: This field contains the lot number of the medical substance administered. It may remain empty if the dose is from a historical record.

Note: The lot number is the number printed on the label attached to the container holding the substance and on the packaging, which houses the container. If two lot numbers are associated with a product that is a combination of different components, they may be included in this field. The first repetition should be the vaccine.

The Missouri Immunization Registry will only record one lot number.

[4] This value should uniquely identify a specific facility. Systems may choose to publish a table with local values.

RXA-16 Substance Expiration Date (TS) 01130

Definition: This field contains the expiration date of the medical substance administered. It may remain empty if the dose is from a historical record.

Note: Vaccine expiration date does not always have a "day" component; therefore, such a date may be transmitted as YYYYMM.

RXA-17 Substance Manufacturer Name (CE) 01131

Definition: This field contains the manufacturer of the medical substance administered.

Note: For vaccines, code system MVX should be used to code this field.

The Missouri Immunization Registry will only record one manufacturer.

RXA-18 Substance/Treatment Refusal Reason (CE) 01136

Definition: This field contains the reason the patient refused the medical substance/treatment. Any entry in the field indicates that the patient did not take the substance. If this field is populated, RXA-20, Completion Status shall be populated with RE.

The Missouri Immunization Registry will only record one refusal reason. It will receive and store refusals, but does not return them in an immunization history.

RXA-20 Completion Status (ID) 01223

Definition: This field indicates if the dose was successfully given. It must be populated with RE if RXA-18 is populated. If a dose was not completely administered or if the dose were not potent this field may be used to label the immunization. If this RXA has a CVX of 998 (no vaccine administered) then this shall be populated with NA.

The Missouri Immunization Registry will ignore immunization records with Completion Status = PA (partially administered or impotent dose) and NA (not administered). For Completion Status = RE (refusal), limited information will be stored, but the full immunization record will be ignored.

RXA-21 Action Code – RXA (ID) 01224

Definition: This field indicates the action expected by the sending system. It can facilitate update or deletion of immunization records. This field has a usage of RE. If it is left empty, then receiving systems should assume that the action code is A.

ORC-3, Placer order number, may be used to link to a specific immunization if the system receiving the request has recorded this from the initial order. Local implementers should specify its use in a local implementation guide. The action code U (Update system) is used to indicate to a subordinate receiver that a previously sent immunization should be changed. Most IIS have specific criteria for determining whether to add or update an immunization that do not rely directly on this field. For this reason it is common practice to indicate action as Add even if this vaccination has been previously reported. It is important to not assume that Updates will be or need to be specifically indicated.

Missouri Immunization Registry business rule: If Action Code is D (delete), the immunization will be bypassed (not added or updated), and no record will be deleted from the registry. If Action Code is A, U, or empty, the immunization will be processed as an Add. Deletes and updates of immunization records added to the registry via HL7 may be accomplished by snap shot processing, by contacting the Bureau of Immunizations Assessment and Assurance (BIAA) of the Missouri Department of Health and Senior Services, or may be done directly using ShowMeVax, the web based automated application for the Missouri Immunization Registry. Snap shot processing involves sending the entire immunization history in a single VXU message each time a message is sent for a given individual. Please contact BIAA for the details of snap shot processing and to be set up in the Missouri Immunization Registry as a snap shot provider.

RXR-- Pharmacy/Treatment Route Segment

The Pharmacy/Treatment Route segment contains the alternative combination of route, site, administration device, and administration method that are prescribed as they apply to a particular order.

Table 5-21 Pharmacy/Treatment Route (RXR)

SEQ	LEN	Data Type	CDC IG Cardinality	Missouri Immunization Registry Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	Missouri Immunization Registry Usage	Constraint
1		CE	[1..1]	[1..1]	0162	Route	R	R	
2		CWE	[0..1]	[0..1]	0163	Administration Site	RE	RE	
3		CE	[0..1]	[0..0]	0164	Administration Device	O	X	
4		CE	[0..1]	[0..0]	0165	Administration Method	O	X	
5		CE	[0..1]	[0..0]		Routing Instruction	O	X	
6		CWE	[0..1]	[0..0]	0495	Administration Site Modifier	O	X	

RXR Field Definitions

RXR-1 Route (CE) 00309

Definition: This field is the route of administration.

Refer to User-Defined Table 0162 - Route of Administration for valid values.

This will change, based on HITSP. They specify use of FDA list. Systems should be prepared to accept either FDA or HL7 codes.

The Missouri Immunization Registry expects the HL7 code in component 1.

RXR-2 Administration Site (CWE) 00310

Definition: This field contains the site of the administration route.

6. Messages for Transmitting Immunization Information

This chapter describes each of the messages used to accomplish the use cases described in Chapter 2. These messages are built from the segments described in Chapter 5, Segments and Message Details. The Segments are built using the Data Types specified in Chapter 4. Readers are referred to these chapters for specifics on these components. Issues related to segments and fields that are message specific will be addressed in this chapter.

Table 6-1-Supported Messages

Message	**Purpose**	**Related Messages**	**Associated Profiles**	***Missouri Immunization Registry* Supported**
VXU	Send Immunization History	ACK		Yes
QBP	Request Immunization History and Request Person Id	RSP	Z34^CDCPHINVS	Yes
RSP	Respond to Request for Immunization Record and Respond to Request for Person Id	QBP	Z31^CDCPHINVS Z32^CDCPHINVS	Yes
ACK	Send Message Acknowledgement	VXU, ADT, QBP		Yes
ADT	Send Person Demographic Data	ACK		No

Send Immunization History – VXU

Systems may send unsolicited immunization records using a VXU. This may be a record that is new to the receiving system or may be an update to an existing record. The following table lists

the segments that are part of a VXU. Some of the optional segments are not anticipated to be used. See Appendix B for detailed activity diagrams and example messages that illustrate the processing of this message.

Table 6-2--VXU Segment Usage

Segment	**CDC IG Cardinality**	***Missouri Immunization Registry* Cardinality**	**CDC IG Usage**	***Missouri Immunization Registry* Usage**	**Comment**
MSH	[1..1]	[1..1]	R	R	Every message begins with an MSH-
[{SFT }]	[0..*]	[0..0]	O	X	The Missouri Immunization Registry does not support this segment.
PID	[1..1]	[1..1]	R	R	Every VXU has one PID segment.
PD1	[0..1]	[0..1]	RE	RE	The PID segment in a VXU may have zero or one PD1 segment
NK1	[0..*]	[0..*]	RE	RE	The PID segment in a VXU may have zero or more NK1 segments. The Missouri Immunization Registry will ignore the data in this segment.
PV1	[0..1]	[0..1]	RE	RE	The PID segment in a VXU may have zero or one PV1 segment. Subsequent messages regarding the same patient/client may have a different PV1 segment.
PV2	[0..1]	[0..0]	O	X	The Missouri Immunization Registry does not support this segment.
GT1	[0..1]	[0..0]	O	X	The Missouri Immunization Registry does not support this segment.

Segment	CDC IG Cardinality	*Missouri Immunization Registry* Cardinality	CDC IG Usage	*Missouri Immunization Registry* Usage	Comment
IN1	[0..1]	[0..0]	O	X	The Missouri Immunization Registry does not support this segment.
IN2	[0..1]	[0..0]	O	X	The Missouri Immunization Registry does not support this segment.
IN3	[0..1]	[0..0]	O	X	The Missouri Immunization Registry does not support this segment.
Begin Order group	[0..*]	[0..*]	RE	RE	Each VXU may have zero or more Order groups
ORC	[1..1]	[1..1]	RE	R	The Order group in a VXU must have one ORC segment. The Missouri Immunization Registry will ignore the data in this segment.
TQ1	[0..1]	[0..0]	O	X	The Missouri Immunization Registry does not support this segment.
TQ2	[0..1]	[0..0]	O	X	The Missouri Immunization Registry does not support this segment.
RXA	[1..1]	[1..1]	R	R	Each ORC segment in the Order group must have one RXA segment. Every RXA requires an ORC segment.
RXR	[0..1]	[0..1]	RE	RE	Every RXA segment in the Order group may have zero or one RXR segments.
OBX	[0..*]	[0..*]	RE	RE	Every RXA segment in the Order group may have zero

Segment	CDC IG Cardinality	*Missouri Immunization Registry* Cardinality	CDC IG Usage	*Missouri Immunization Registry* Usage	Comment
					or more OBX segments.
NTE	[0..1]	[0..1]	RE	RE	Every OBX segment in the Order group may have zero or one NTE segment. The Missouri Immunization Registry will ignore the data in this segment.
End Order Group					

The Missouri Immunization Registry applies the following local business rules to VXU messages:

1) Any immunizations with an immunization date prior to the patient's birth date will be rejected.
2) Any immunizations with an immunization date in the future (relative to MSH-7) will be rejected.
3) If a VXU is received with Protection Indicator (PD1-12) set to Y, the data associated with that VXU will not be loaded to the registry.
4) Only patient identifiers of types (PID-3.5) MA, PI, SR, and SS are used. At least one identifier of one of these types must be present. Identifiers of all other types are ignored.
5) If a VXU is received for a client that does not exist in the Missouri Immunization Registry, that client's record will not be added unless the VXU contains at least one valid immunization.
6) CVX code is required in RXA-5.
7) Deletes and updates of immunization records added to the registry via HL7 may be accomplished by snap shot processing, by contacting the Bureau of Immunizations Assessment and Assurance (BIAA) of the Missouri Department of Health and Senior Services, or may be done directly using ShowMeVax, the web based automated application for the Missouri Immunization Registry. Snap shot processing involves sending the entire immunization history in a single VXU message each time a message is sent for a given individual. Please contact BIAA for the details of snap shot processing and to be set up in the Missouri Immunization Registry as a snap shot provider.
8) If Action Code, RXA-21, is D (Delete), the immunization record will be bypassed. It will not result in the deletion of a record from the registry.
9) If Action Code, RXA-21, is A (Add), U (Update), or empty, the immunization record

will be compared with immunization records for that patient that are already in the registry to find a match. That matching process will determine whether the immunization record should be added to the registry or be rejected as a duplicate record. It will not result in an immunization record being updated. In general, administered immunizations (RXA-9 = 00) will be considered as duplicates if they match an existing administered immunization record on CVX Code, have administered date within 10 days of the existing record administered date, and were administered by the same provider organization. In general, historical immunizations (RXA-9 not = 00) will be considered as duplicates if the vaccine group(s) covered by the immunization are already covered by existing records having administered date within 10 days of the received immunization administered date.

10) OBX data (other than Financial Class) stored in the registry is not tied to a particular immunization record. It may be received as a child of a dummy RXA having CVX code 998.

Requesting Information (Immunization History) – QBP

This description will specify the use of QBP for messaging, but is not specific to the use cases in this Guide. Formal Query and Response Profiles for specifying the structure to support the use cases will follow in Chapter 7. The QBP query has a matching RSP response. (See below)

QBP/RSP – query by parameter/segment pattern response (events vary)

Table 6-3 QBP/RSP – Query By Parameter/Segment Pattern Response

Segment	**CDC IG Cardinality**	***Missouri Immunization Registry* Cardinality**	**CDC IG Usage**	***Missouri Immunization Registry* Usage**	**Comment**
MSH	[1..1]	[1..1]	R	R	The MSH must include an identifier which indicates the Query Profile used.
[{SFT }]	[0..1]	[0..0]	O	X	The Missouri Immunization Registry does not support this segment.
QPD	[1..1]	[1..1]	R	R	
[	--- QBP begin				
[…]	[1..*]	[1..*]	R	R	The Query Profile will

Segment	CDC IG Cardinality	*Missouri Immunization Registry* Cardinality	CDC IG Usage	*Missouri Immunization Registry* Usage	Comment
					specify the list of fields and their components in the order that they will be expected for this query.
]	--- QBP end				
RCP	[1..1]	[1..1]	R	R	The Query Profile will list the segments that are expected to be returned in response to this query.
[DSC]	[0..1]	[0..0]	O	X	The Missouri Immunization Registry does not support this segment.

Respond to Request for Information – RSP

The specifications below are not specific to the request for immunization history, but are the foundation on which those specifications are based. The Query profile for requesting an immunization history and the associated Response may be found in Chapter 7 of this Guide.

Formal Profiles based on the Query Profile in Chapter 7 will allow the requesting system to be informed if the response is a list of candidate clients or a single immunization history.

Table 6-4-Segment Pattern Response (RSP)

Segment	CDC IG Cardinality	*Missouri Immunization Registry* Cardinality	CDC IG Usage	*Missouri Immunization Registry* Usage	Comment
MSH	[1..1]	[1..1]	R	R	The MSH will indicate which query is being responded to and what Query Profile it was based on.
[{SFT }]	[0..1]	[0..0]	O	X	The Missouri

Segment	CDC IG Cardinality	*Missouri Immunization Registry* Cardinality	CDC IG Usage	*Missouri Immunization Registry* Usage	Comment
					Immunization Registry does not support this segment.
MSA	[1..1]	[1..1]	R	R	
[ERR]	[0..1]	[0..1]	O	RE	The Missouri Immunization Registry will not return the ERR segment.
QAK	[1..1]	[1..1]	R	R	
QPD	[1..1]	[1..1]	R	R	This segment echoes the Query Parameter Definition Segment sent in the requesting query.
[	--- SEGMENT_PATTERN begin				
…	[0..1]	[1..*]	O	R	The Query Profile will specify the list of fields and their components in the order that they will be expected for this query.
]	--- SEGMENT_PATTERN end				
[DSC]	[0..1]	[0..0]	O	X	The Missouri Immunization Registry does not support this segment.

Requesting An Immunization History from Another System – VXQ

The use of VXQ is not supported for 2.5.1 immunization messaging.
Version 2.5.1 implementations are expected to support QBP style query.

Acknowledging a Message – ACK

The ACK returns an acknowledgement to the sending system. This may indicate errors in processing.

Table 6-5 General Acknowledgement Message (ACK)

Segment	CDC IG Cardinality	*Missouri Immunization Registry* Cardinality	CDC IG Usage	*Missouri Immunization Registry* Usage	Comment
MSH	[1..1]	[1..1]	R	R	Every ACK message begins with an MSH-
[{SFT}]	[0..1]	[0..0]	O	X	The Missouri Immunization Registry does not support this segment.
MSA	[1..1]	[1..1]	R	R	Every ACK message has an MSA segment.
[{ERR}]	[0..*]	[0..*]	RE	RE	Include if there are errors. The Missouri Immunization Registry will not return the ERR segment.

Note: For the general acknowledgment (ACK) message, the value of MSH-9-2-Trigger event is equal to the value of MSH-9-2-Trigger event in the message being acknowledged. The value of MSH-9-3-Message structure for the general acknowledgment message is always ACK.

Sending Demographic Information – VXU or ADT

The Missouri Immunization Registry will not support the ADT message. Demographic information may only be sent via the VXU message.

Sending Messages in a Batch

Systems may choose to send messages in batches. A stream of messages may be sent without use of either BHS or FHS segments.

The Missouri Immunization Registry will ignore BHS, BTS, FHS, and FTS segments. That is, it will consider any file of messages to be a single batch. Only VXU messages may be sent in a batch.

7. Query and Response Profile (QBP/RSP)

The Missouri Immunization Registry will not use the PDQ profile or the PIX query. It will use the Query and Response Profile (QBP/RSP) as defined in Chapter 7 of Release 1.3 of the CDC IG with the following changes/clarifications:

- Constraints on MSH fields will be as described in Chapter 5 of this Local IG.
- In the QBP message,
    - For QPD-3, Patient Identifier List, only identifiers of types PI, SR, SS, and MA will be used for matching. Identifiers of all other types will be ignored.
    - For QPD-4, Patient Name, only Family Name and Given Name will be used for matching. Other components will be ignored.
    - If QPD-4, Patient Name, is not valued, then all values for this field are considered a match.
    - For QPD-5, Patient Mother's Maiden Name, only Family Name will be used for matching. Other components will be ignored.
    - For QPD-6, Patient Date of Birth, only the date portion will be used for matching. The time portion will be ignored.
    - QPD-7, Patient Sex, will not be used for matching. It will be ignored.
    - QPD-8, Patient Address, will not be used for matching. It will be ignored.
    - QPD-9, Patient home phone, will not be used for matching. It will be ignored.
    - QPD-10, Patient multiple birth indicator, will not be used for matching. It will be ignored.
    - QPD-11, Patient birth order, will not be used for matching. It will be ignored.
    - QPD-12, Client last updated date, will not be used for matching. It will be ignored.
    - QPD-13, Client last update facility, will not be used for matching. It will be ignored.
- The ERR segment will not be returned.

The Missouri Immunization Registry applies the following local business rules to QBP messages:

1) Patient Identifier List (QPD-3), Patient Name (QPD-4), Patient Mother's Maiden Name (QPD-5), and Patient Date of Birth (QPD-6) will be used for matching. Other QPD fields will be ignored.
2) None of the matching fields are required.

The Missouri Immunization Registry applies the following local business rules to RSP messages:

1) If a patient has indicated that they want their records to be protected, the Missouri Immunization Registry will not return the patient in a candidate list or immunization history.
2) The maximum number of candidates that will be returned in a candidate list is 10, unless further constrained by the value of RCP-2.1, the Quantity in Quantity Limited Request.
3) Any OBX data (other than Financial Class) returned in an immunization history will be tied to a dummy RXA having CVX Code 998.

8. Change History

Version	Date	Author	Location	Change
1.0	12/31/2011	T. Rice		Initial Version
1.1	06/30/2012	T. Rice		Update document to reflect that Missouri does not return the ERR segment.
1.1	06/30/2012	T. Rice	Ch. 5, MSH-7	Clarify that time zone is not used.
1.1	06/30/2012	T. Rice	Ch. 5, MSH-16	Clarify when QBP is acknowledged.
1.1	06/30/2012	T. Rice	Ch. 5, NK1-33	Clarify the tables that are used.
1.1	06/30/2012	T. Rice	Ch. 5, NK1-33.4	Clarify how assigning authority is populated.
1.1	06/30/2012	T. Rice	Ch. 5, NK1-33.5	Clarify which patient identifier types are accepted and that SSN is not returned.
1.1	06/30/2012	T. Rice	Ch. 5, OBX-4	Clarify that Observation Sub-ID will be null.
1.1	06/30/2012	T. Rice	Ch. 5, OBX-6	Clarify that Units will be null.
1.1	06/30/2012	T. Rice	Ch. 5, PD1	Clarify that certain PD1 fields will be ignored.
1.1	06/30/2012	T. Rice	Ch. 5, PID-3	Clarify the tables that are used.
1.1	06/30/2012	T. Rice	Ch. 5, PID-3.4	Clarify how assigning authority is populated.
1.1	06/30/2012	T. Rice	Ch. 5, PID-3.5	Clarify which patient identifier types are accepted and that SSN is not returned.
1.1	06/30/2012	T. Rice	Ch. 5, PID-11	Clarify which address types are acceptable.
1.1	06/30/2012	T. Rice	Ch. 5, PID-13	Clarify use of codes for phone number and e-mail.
1.1	06/30/2012	T. Rice	Ch. 5, QAK-3	Indicate that QAK-3 will be returned.
1.1	06/30/2012	T. Rice	Ch. 5, RXA-5	Indicate that CVX code is required.
1.1	06/30/2012	T. Rice	Ch. 5, RXA-20	Clarify which completion codes are accepted.
1.1	06/30/2012	T. Rice	Ch. 5, RXR-1	Value from HL70162 is expected in component 1.
1.1	06/30/2012	T. Rice	Appendix A, Table 0064	Add financial class code V00.
1.1	06/30/2012	T. Rice	Appendix	Update message examples.

			B	

Appendix A: Code Tables

User-defined Table 0064 - Financial class [*NIP suggested values*] (use in OBX-5 for client eligibility for a funding program at the dose administered level)
Financial class references a client's eligibility status at the time of vaccine administration. It is the eligibility of the client for the vaccine administered. The values in this table relate to eligibility for the Vaccine for Children (VFC) program.
Local implementations may define and document local codes. Each state immunization program may have locally specified funding programs for immunizations. In order to assure that each is unique across states, codes should be created that begin with the grantee assigning authority code from table 0363 in the Implementation Guide for Immunization Messaging, release 1.3. This would be followed by sequential number, left padded to a length of 2. For example if Alaska had a funding program, they would create a code of AKA01 for the first program. It is incumbent on the state or other jurisdiction to clearly describe the requirements that qualify a person for that funding program. For instance if the hypothetical funding program in Alaska covered people who were too old for VFC program but would otherwise qualify because they were Medicaid eligible, then they would define the code as:
"Client is currently on MEDICAID and is older than 19 years old."

Note that funding source for a specific immunization is different from client eligibility for funding program (Financial Class).

Code	Label	Definition
V00	VFC eligibility unknown/undetermined	No VFC eligibility determination has been made or recorded. This is the same as if no code were entered, but is allowed to accommodate some EHR's.
V01	Not VFC eligible	Client does not qualify for VFC because they do not have one of the statuses below. (V02-V05)
V02	VFC eligible-Medicaid/Medicaid Managed Care	Client is currently on Medicaid or Medicaid managed care and < 19 years old and the vaccine administered is eligible for VFC funding.

V03	VFC eligible- Uninsured	Client does not have private insurance coverage and < 19 years old and the vaccine administered is eligible for VFC funding.
V04	VFC eligible- American Indian/Alaskan Native	Client is a member of a federally recognized tribe and < 19 years old and the vaccine administered is eligible for VFC funding.
V05	VFC eligible-Federally Qualified Health Center Patient (under-insured)	Client has insurance, but insurance does not cover vaccines, limits the vaccines covered, or caps vaccine coverage at a certain amount and so client is eligible for VFC coverage at a Federally Qualified Health Center. The client must be receiving the immunizations at the FQHC or a FQHC designated clinic and < 19 years old and the vaccine administered is eligible for VFC funding.
V06	Deprecated [VFC eligible-State specific eligibility (e.g. S-CHIP plan)]	Do not use this code. State specific funding should either use V07 or a state generated code.
V07	Local-specific eligibility	Client is eligible for state supplied vaccine based on local specific rules and the vaccine administered is eligible for state- funding.
V08	Deprecated [Not VFC eligible-underinsured]	Do not use this code. The MIROW effort determined that persons in this situation are V01, not VFC eligible. It is not necessary to differentiate this sub-

		class of Not VFC eligible.

Appendix B: Guidance on Usage and Example Messages

Examples from the CDC IG are customized here.

Example VXU # 1-Basic message:

Storyboard:

Johnny New Patient (male), born 4/14/09 has had 1 dose of Hep B on 4/15/09, according to the record brought in by Mom (Sally Patient). They live at 123 Any Street, Somewhere, Missouri 65000. Nurse Sticker at Dalittle Clinic (DCS_DC), administers the following shots on 5/31/09:

- DTAP-Hep B-IPV (Pediarix) lot # xy3939 IM
- HIB (ActHIB) lot # 33k2a IM

They were all ordered by Dr Mary Pediatric who belongs to Dabig Clinical System, which has been assigned the facility identifier 123456789 by MODHSS (the Missouri Department of Health and Senior Services). Mom acknowledged that his data may be shared with other providers. Johnny is eligible for Medicaid. His local patient identifier in Dabig Clinical System is 432155. Myron Clerk entered the information into the EHRs (MYEHR).

The information was sent from Dabig Clinical System to the State IIS.

Note that we will indicate the end of each segment with a <CR>. Segments may wrap around in this document. We will insert a blank line between segments for increased readability.

MSH|^~\&|MYEHR|123456789|SHOWMEVAX|MODHSS|20090531145259||VXU^V04^VXU_V04|3533469|P|2.5.1<CR>

PID|1||432155^^^DCS^PI||PATIENT^JOHNNY^NEW^^^^L||20090414|M||^^^2054-5|123 ANY ST^^SOMEWHERE^MO^65000^^H||||||||||^^^2135-2<CR>

PD1||||||||||||N|20090531<CR>

NK1|1|PATIENT^SALLY|MTH^MOTHER^HL70063|123 ANY ST^^SOMEWHERE^MO^65000^^H<CR>

PV1|1|R|||||||||||||||||V02^20090531<CR>

ORC|RE||197023^DCS|||||||^CLERK^MYRON|||||||DCS^DABIG CLINICAL SYSTEM^STATEIIS<CR>

RXA|0|1|20090415|20090415|31^HEP B PEDS NOS^CVX|999|||01^HISTORICAL RECORD^NIP001<CR>

ORC|RE||197027^DCS|||||||^CLERK^MYRON||^PEDIATRIC^MARY^^^^^^^L^^^^^^^^^^^MD<CR>

RXA|0|1|20090531|20090531|48^HIB PRP-T^CVX|999|||00^NEW IMMUNIZATION RECORD^NIP001|^STICKER^NURSE|^^^DCS_DC||||33K2A|20120101|PMC^SANOFI^MVX|||CP|A<CR>

RXR|IM^INTRAMUSCULAR^HL70162|RA<CR>

ORC|RE||197028^DCS||||||^CLERK^MYRON||^PEDIATRIC^MARY^^^^^^^L^^^^^^^^^^MD<CR>

RXA|0|1|20090531|20090531|110^DTAP-HEP B-IPV^CVX|999|||00^NEW IMMUNIZATION RECORD^NIP001|^STICKER^NURSE|^^^DCS_DC||||XY3939|20130507|SKB^GSK^MVX|||CP|A<CR>

RXR|IM^INTRAMUSCULAR^HL70162|RA<CR>

Note that the use of the PV1 segment in this example to communicate Financial Class is in keeping with Release 1.2 of the CDC IG. Example 2 will use the OBX segment to communicate Financial Class, in keeping with Release 1.3 of the CDC IG.

Example VXU #2 - Indicate client eligibility status for a funding program for vaccines administered:

VFC Eligible Client Received Vaccine That Is VFC eligible

RXA|0|1|20090531|20090531|48^HIB PRP-T^CVX|999|||00^NEW IMMUNIZATION RECORD^NIP001|^STICKER^NURSE|^^^DCS_DC||||33K2A|20120101|PMC^SANOFI^MVX|||CP|A<CR>

RXR|IM^INTRAMUSCULAR^HL70162|LA<CR>

OBX|1|CE|64994-7^VACCINE FUND PGM ELIG CAT^LN|1|V04^VFC ELIGIBLE NA/AN^HL70064|||||F|||20090531<CR>

VFC Ineligible Client Received Vaccine That Is VFC eligible

RXA|0|1|20090531|20090531|48^HIB PRP-T^CVX|999|||00^NEW IMMUNIZATION RECORD^NIP001|^STICKER^NURSE|^^^DCS_DC||||33K2A|20120101|PMC^SANOFI^MVX|||CP|A<CR>

RXR|IM^INTRAMUSCULAR^HL70162|LA<CR>

OBX|1|CE|64994-7^VACCINE FUND PGM ELIG CAT^LN|1|V01^NOT VFC ELIGIBLE ^HL70064|||||F|||20090531<CR>

VFC Eligible Client Received Vaccine That Is Not VFC eligible

RXA|0|1|20090531|20090531|37^YELLOW FEVER^CVX|999|||00^NEW IMMUNIZATION RECORD^NIP001|^STICKER^NURSE|^^^DCS_DC||||33K2A||PMC^SANOFI^MVX|||CP|A<CR>

RXR|IM^INTRAMUSCULAR^HL70162|LA<CR>

OBX|1|CE|64994-7^VACCINE FUND PGM ELIG CAT^LN|1|V01^NOT VFC ELIGIBLE ^HL70064|||||F|||20090531<CR>

VFC Eligible Client Received Vaccine That Is Eligible for Local Funding Program

The Missouri Immunization Registry does not currently recognize any local funding programs.

Example VXU #3 - Include immunization history evaluation and forecast in VXU

There is no example because the Missouri Immunization Registry does not support immunization history evaluation and forecast in VXU.

Example VXU #4 - Send client specific conditions

Evidence of immunity:

ORC|RE||197027^DCS|||||||^CLERK^MYRON|<CR>

RXA|0|1|20090412|20090412|998^NO VACCINE ADMINISTERED^CVX|999|||||||||||||NA<CR>

OBX|1|CE|59784-9^DISEASE WITH PRESUMED IMMUNITY^LN|1|38907003^HISTORY OF VARICELLA INFECTION^SCT|||||F|||20090531<CR>

Contraindications to immunization:

OBX|1|CE|30945-0^VACCINATION CONTRAINDICATION^LN|1|91930004^ALLERGY TO EGGS^SCT|||||F|||20090415<CR>

Example VXU #5 – Send immunizations associated with reactions (adverse events)

ORC|RE||197027^DCS|||||||^CLERK^MYRON||^PEDIATRIC^MARY^^^^^^^L^^^^^^^^^^MD<CR>

RXA|0|1|20090412|20090412|48^HIB PRP-T^CVX|999|||00^NEW IMMUNIZATION RECORD^NIP0001|^STICKER^NURSE|^^^DCS_DC||||33K2A|20120101|PMC^SANOFI^MVX|||CP<CR>

RXR|IM^INTRAMUSCULAR^HL70162|LA<CR>

OBX|1|CE|31044-1^REACTION^LN|1|VXC12^FEVER > 40.5C^CDCPHINVS|||||F|||20090415<CR>

Example VXU #6 – Delete an Immunization Record

There is no example because the Missouri Immunization Registry does not support deletion of an immunization record via HL7, other than by snap shot processing.

VXU Example #7--Send Information About Vaccine Information Statement (VIS)

There is no example because the Missouri Immunization Registry does not support sending information about VIS.

VXU Example #8—Send Information About Immunization Refusal

ORC|RE||197027^DCS|||||||^CLERK^MYRON<CR>

RXA|0|1|20091010|20091010|107^DTAP-NOS^CVX|999|||00|||||||||00^PARENTAL REFUSAL^NIP002||RE<CR>

VXU Example #9—Send Two Lot Numbers in RXA

There is no example because the Missouri Immunization Registry does not support sending two lot numbers in a single RXA.

VXU Example #10—Recording Birth Information

PID|1||432155^^^DCS^PI||PATIENT^JOHNNY^NEW^^^^L||20090414|M|||123 ANY ST^^SOMEWHERE^MO^65000^^H~^^^MO^^USA^BR<CR>

VXU Example #11—Recording an incompletely administered dose or a non-potent dose

RXA|0|1|20091010|20091010|03^MMR^CVX|999|||00||||||A23E1|20110822|MSD^^MVX|||PA<CR>

Send Acknowledgement ACK In Response To VXU

Send acknowledgement of success in ACK
MSH|^~\&|SHOWMEVAX|MODHSS|MYEHR|123456789|20090531145310||ACK^V04^ACK|12481630|P|2.5.1<CR>

MSA|AA|9299381<CR>

Acknowledging A Fatal HL7 Processing Error
MSH|^~\&|SHOWMEVAX|MODHSS|MYEHR|123456789|20090531145320||ACK^V04^ACK|12481631|P|2.5.1<CR>

MSA|AE|9299381<CR>

Acknowledging A Non-Fatal HL7 Processing Error
There is no example because the Missouri Immunization Registry does not support acknowledging a non-fatal HL7 processing error.

Send Request for Vaccine History (QBP/RSP)

Using QBP query to replicate VXQ/VXX/VXR
MSH|^~\&|MYEHR|123456789|SHOWMEVAX|MODHSS|20091130145330||QBP^Q11^QBP_Q11|793543|P|2.5.1||||||||Z34^CDCPHINVS<CR>

QPD|Z34^REQUEST IMMUNIZATI0N HISTORY^CDCPHINVS|37374859|123456^^^MYEHR^PI|CHILD^BOBBIE|QUE|20050512<CR>

RCP||5^RD<CR>

Returning a list of candidate clients in response to QBP^Q11 query
MSH|^~\&|SHOWMEVAX|MODHSS|MYEHR|123456789|20091130145340||RSP^K11^RSP_K11|12481632|P|2.5.1||||||||Z31^CDCPHINVS<CR>

MSA|AA|793543<CR>

QAK|37374859|AA|Z34^REQUEST IMMUNIZATI0N HISTORY^CDCPHINVS<CR>

QPD|Z34^REQUEST IMMUNIZATI0N HISTORY^CDCPHINVS|37374859|123456^^^MYEHR^PI|CHILD^BOBBIE|QUE|20050512<CR>

PID|1||99445566^^^MOA^SR||CHILD^ROBERT^^^^^L||20050512|M||^^^2054-5|||||||||||^^^2186-5 <CR>

NK1||CHILD^SUSAN|MTH^MOTHER|^^MYFAIRCITY^GA|||||||||||||||||||||||||||12345678^^^MOA^MA<CR>

PID|2||123456^^^MOA^SR||CHILD^ROBERT^^^^^L||20050512|M<CR>

Returning an immunization history in response to a Request for Immunization History query
MSH|^~\&|SHOWMEVAX|MODHSS|MYEHR|123456789|20091130145350||RSP^K11^RSP_K11|1
2481633|P|2.5.1||||||||Z32^CDCPHINVS<CR>

MSA|AA|793543<CR>

QAK|37374859|OK|Z34^REQUEST IMMUNIZATI0N HISTORY^CDCPHINVS<CR>

QPD|Z34^REQUEST IMMUNIZATI0N
HISTORY^CDCPHINVS|37374859|123456^^^MYEHR^PI|CHILD^BOBBIE|QUE|20050512<CR>

PID|1||123456^^^MOA^SR||CHILD^ROBERT^QUENTON^^^^L|QUE|||||10 EAST MAIN
ST^^MYFAIRCITY^GA<CR>

PD1||||||||||||N|20091130<CR>

NK1|1|CHILD^SUZY|MTH^MOTHER<CR>

ORC|RE||142324567<CR>

RXA|0|1|20050725|20050725|03^MMR^CVX|999|||00^New Immunization Record^NIP001<CR>

RXR|IM|LA<CR>

OBX|1|CE|64994-7||V03||||||F|||20050725

Acknowledging a Query that finds no candidate clients
MSH|^~\&|SHOWMEVAX|MODHSS|MYEHR|123456789|20091130145400||RSP^K11^RSP_K11|1
2481634|P|2.5.1||||||||Z34^CDCPHINVS<CR>

MSA|AA|793543<CR>

QAK|37374859|NF|Z34^REQUEST IMMUNIZATI0N HISTORY^CDCPHINVS<CR>

QPD|Z34^REQUEST IMMUNIZATI0N
HISTORY^CDCPHINVS|37374859|123456^^^MYEHR^PI|CHILD^BOBBIE|QUE|20050512<CR>

Acknowledging a query that finds more candidates than requested
There is no example because the Missouri Immunization Registry does not distinguish between no candidate clients found and too many candidate clients found.

Using a Two-step process to request an immunization history
There is no example because the Missouri Immunization Registry does not support PDQ and PIX.

Receiving system determines that message has errors

Malformed Query
MSH|^~\&|SHOWMEVAX|MODHSS|MYEHR|123456789|20091130145430||ACK^K11^ACK|12481637|P|2.5.1<CR>

MSA|AE|793543<CR>

The Missouri Immunization Registry does not return the ERR segment which would specifically identify query fields in error.

Malformed message
MSH|^~\&|SHOWMEVAX|MODHSS|MYEHR|123456789|20091130145430||ACK^K11^ACK|12481637|X|2.5.1<CR>

MSA|AE|793543<CR>

The Missouri Immunization Registry does not return the ERR segment which would specifically identify message fields in error.